

**Signals™**

*A Systems Framework for Interpreting Human Behaviour as Output, Not Identity*

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## **Abstract**

Human behaviour is commonly interpreted as a reflection of personality, intention, or internal traits. This paper proposes a different organizing principle:

**Behaviour is an observable output (signal) of a system operating under specific conditions.**

**A signal is an output produced by a system in response to internal state and external conditions. It may appear as observable behaviour or as internally contained activation.**

**Signals™ is a systems-level framework in which behaviour is understood as the output of interacting variables:**

$$\text{Signal} = (\text{State} \times \text{Load}) \div \text{Capacity}$$

*This expression represents a relational model, not a fixed measurement. Each variable is dynamic and context-dependent.*

Drawing from cognitive science, stress physiology, executive function research, and predictive processing, this model reframes behavioural variability as condition-dependent output rather than inconsistency, pathology, or identity.

### **Model Clarifications and Scope**

This model is intended as a conceptual framework for understanding how behaviour emerges under interacting conditions. It is not a quantitative formula and is not designed for precise measurement or prediction.

The expression:

$$\text{Signal} = (\text{State} \times \text{Load}) \div \text{Capacity}$$

describes directional relationships between variables rather than exact values. It illustrates how internal state and external load interact to influence output, and how available capacity modulates that output.

The variables are not independent or fixed. Each is dynamic and context-dependent, shaped by prior activation, environment, physiology, and experience.

“Signal” refers to the observable or internal expression of system activity. It does not represent productivity, performance quality, or personal capability.

This framework does not replace existing psychological, physiological, or behavioural models. It offers a different organizing lens for interpreting behaviour as output rather than identity.

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## 1. Problem Statement: The Misclassification of Behaviour

Behaviour is typically interpreted through:

- Personality models
- Motivational frameworks
- Trait-based psychology

This produces conclusions such as:

- “Avoidant”
- “Disciplined”
- “Inconsistent”

These interpretations assume behavioural stability.

However, empirical research consistently demonstrates that cognition, decision-making, and action fluctuate based on:

- Stress
- Cognitive load
- Environmental conditions

The same individual may perform optimally under one set of conditions and poorly under another.

This variability is often misclassified as identity, leading to misinterpretation and ineffective intervention.

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## 2. Definition: What Is a Signal

A signal is defined as:

**An observable output produced by a system in response to internal state and external conditions.**

Signals are:

- Observable (behaviour, action, inaction, tone)
- Variable
- Condition-dependent

Signals are not:

- Identity

- Personality
- Intention

This distinction aligns with systems-based approaches in neuroscience and cognitive science, where outputs are understood as emergent properties of interacting variables, not fixed traits.

Observable behaviour is one form of signal expression, not the signal itself.

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### 3. Core Model

**Signal = (State × Load) ÷ Capacity**

**State and load generate pressure within the system, while capacity moderates how much of that pressure is expressed as output.**

This model integrates established domains into a single explanatory structure.

Behaviour (signal) emerges from the interaction between:

- the system's current condition (**state**),
- the total demands placed on it (**load**),
- and the resources available to meet those demands (**capacity**).

Signals increase when:

- state is elevated (e.g., threat activation),
- load is high,
- and/or capacity is reduced.

Signals decrease when:

- state stabilizes,
- load is reduced,
- and/or capacity increases.

This relationship reflects a fundamental principle observed across cognitive and physiological systems:

When demand exceeds available resources, performance degrades.

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### 3.1 State (Nervous System Condition)

State refers to the organism's current physiological and neural condition.

State influences:

- Perception
- Attention
- Emotional processing
- Behavioural readiness

Under stress or threat-related activation:

- Attention narrows
- Threat detection increases
- Behavioural options reduce

State is dynamic, not fixed.

Within the model, state acts as a **multiplier of sensitivity**:

- Higher activation increases the intensity and reactivity of signals

- Regulated states reduce amplification
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### 3.2 Load (Total System Demand)

Load refers to the total demands placed on the system. Load includes current demands, accumulated strain, and previously encoded patterns activated in the present.

This includes:

- Cognitive load (information, complexity)
- Emotional load (uncertainty, consequence)
- Environmental load (time pressure, social evaluation)

As load increases:

- Processing efficiency decreases
- Error rates increase
- Task performance declines

Within the model, load acts as a **demand amplifier**:

- Greater load increases strain on the system
  - High load pushes the system toward capacity limits
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### 3.3 Capacity (Available Processing Resources)

Capacity refers to the system's available resources at a given moment. Capacity reflects both the ability to tolerate demand and to regulate or modulate response.

This includes:

- Working memory
- Attentional bandwidth
- Emotional tolerance

Capacity is:

- Limited
- Variable

Within the model, capacity functions as a **regulating factor**:

- Higher capacity reduces the impact of load and stabilizes output
- Lower capacity increases the likelihood of overwhelm, withdrawal, or reactivity

When:

**Load > Capacity → Signal intensity increases and performance degrades**

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### **3.4 Coherence (Alignment of Output)**

Coherence refers to the degree to which behaviour can occur without internal resistance or override.

Coherence is observed when:

- Action feels direct and unforced
- Decisions do not require sustained effort to maintain
- Output aligns with available capacity

Low coherence appears as:

- Friction
- Delay
- Internal conflict
- Effortful override

Coherence is not a trait.

It is a real-time indicator of alignment between state, load, and capacity.

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## 4. Behavioural Variability as System Output

Behaviour changes when:

- State shifts
- Load increases
- Capacity decreases

This explains why the same individual may:

- Act decisively in one context
- Hesitate or withdraw in another

This is not inconsistency.

It is **output variation based on system conditions.**

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## 5. Reclassification of Common Behavioural Labels

<b>Traditional Label</b>	<b>Signals™ Interpretation</b>
Avoidant	Load exceeds capacity under current state
Inconsistent	Variable conditions producing different outputs
Overreactive	State-driven amplification of response
Disengaged	Capacity reduction or protective withdrawal

This reframing supports a non-pathologizing, systems-based interpretation of behaviour.

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## **6. Supporting Research Integration**

Signals™ integrates established findings into a unified explanatory model:

### **Stress & Decision-Making**

Stress alters executive function, attention, and risk processing.

### **Cognitive Load Theory**

Performance declines when demands exceed working memory capacity.

### **Executive Function**

Behaviour depends on available cognitive control resources.

### **Predictive Processing**

The brain generates predictions based on prior experience and current input, shaping perception and action.

### **Allostasis**

The body regulates behaviour based on anticipated demands, not just current conditions.

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## 7. Implications

### 7.1 Behaviour Is Output, Not Identity

Interpretation shifts from:

- “Who someone is”  
to:
- What conditions are present

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### 7.2 Behaviour Does Not Change Through Instruction Alone

Behaviour does not reliably change through correction or advice alone.

It changes when:

- Load is reduced
- Capacity is supported
- State stabilizes

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### 7.3 Variability Becomes Data

Behavioural fluctuation is not failure.

It is:

**Information about system conditions.**

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## 8. Distinction from Existing Models

Signals™ differs from dominant approaches to human behaviour in both structure and function.

Traditional models tend to interpret behaviour as:

- a reflection of stable traits (trait-based psychology),
- a product of internal causes requiring explanation (psychodynamic and trauma models),
- or a pattern to be categorized and corrected (diagnostic frameworks).

These approaches rely on interpretation.

They ask:

- *What does this behaviour mean?*
- *What does it say about the person?*

Signals™ asks a different question:

### **What conditions are producing this output?**

This shift removes the need to interpret behaviour as identity, intention, or pathology.

Instead, behaviour is treated as:

- observable,
  - variable,
  - and condition-dependent.
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## 8.1 From Interpretation to Observation

In most models, behaviour is something to be explained.

In Signals<sup>TM</sup>, behaviour is something to be **read**.

The signal contains information about underlying conditions, reducing the need for identity-based inference:

- State is reflected in tone, urgency, or withdrawal
  - Load is reflected in fragmentation, error, or delay
  - Capacity is reflected in tolerance, flexibility, or breakdown
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## 8.2 From Identity to Output

Where traditional models assign labels:

- “avoidant”
- “inconsistent”
- “dysregulated”

Signals<sup>TM</sup> reclassifies these as:

- Load exceeding capacity
- Variable system conditions
- State-driven amplification

This removes identity-based conclusions and replaces them with system-based explanations.

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### **8.3 From Correction to Condition**

Most interventions attempt to change behaviour directly:

- through instruction
- motivation
- or regulation strategies

Signals™ identifies a different leverage point:

Behaviour changes when conditions change.

This reframes intervention from:

- “fix the person”

to:

- “adjust the system.”
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### **8.4 Functional Difference**

Signals™ does not:

- diagnose
- interpret
- or assign identity

It:

- explains output
- identifies conditions

- and preserves variability as meaningful data
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## 9. Conclusion

Human behaviour is not fixed.

It is:

**The observable output of a system under conditions.**

When conditions change:

**Behaviour changes.**

What appears inconsistent is often:

**Consistent with state, load, and capacity.**

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## Closing Statement

The question is not who someone is.

It is:

**what conditions are producing what you're seeing.**

Change the conditions, and the behaviour changes.

The signal was never the problem.

It was the evidence.

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