

## Supplemental Analysis: Pragmatist and Neo-Materialist Foundations

### S3.1 North American Pragmatism and the Calculus of Indications

# The Peircean Heritage

Charles Sanders Peirce (1839-1914) developed **Existential Graphs**—a diagrammatic logic that anticipates Spencer-Brown's calculus in fundamental ways [?, ?]. The connection is not merely superficial but structural.

## Peirce's Existential Graphs

Peirce's system employs:

- **Sheet of Assertion:** The blank page represents truth (cf. Spencer-Brown's unmarked space)
- **Cuts:** Closed curves that negate their contents (cf. enclosure)
- **Juxtaposition:** Co-presence on the sheet represents conjunction

| Peirce's Graphs | Spencer-Brown | Interpretation             |
|-----------------|---------------|----------------------------|
| Blank sheet     | Void          | Base state                 |
| Cut ( )         | Mark ⟨ ⟩      | Negation/distinction       |
| Double cut      | ⟨⟨ ⟩⟩         | Double negation = identity |
| Adjacent graphs | Juxtaposition | Conjunction                |

## William James: Radical Empiricism

James's **radical empiricism** [?] insisted that relations are as real as the things related. This aligns with boundary logic:

| James                 | Containment Theory       |
|-----------------------|--------------------------|
| Relations are real    | Boundaries are primitive |
| Conjunctive relations | Juxtaposition            |
| Disjunctive relations | Separation by mark       |
| Pure experience       | Void before distinction  |

James's "stream of consciousness" fragments through distinction; the calculus formalizes this fragmentation.

## The Pragmatic Maxim

Peirce's pragmatic maxim: "Consider what effects... the object of our conception has. Then, our conception of these effects is the whole of our conception of the object."

For the mark ⟨ ⟩: - **Effect**: Creates inside/outside - **Conception**: The mark *is* distinction itself - **Meaning**: Fully contained in

## John Dewey: Inquiry as Distinction

Dewey's **instrumentalism** [?] treats inquiry as the transformation of indeterminate situations into determinate ones—precisely the function of distinction.

| Dewey's Inquiry          | Boundary Operation                  |
|--------------------------|-------------------------------------|
| Indeterminate situation  | Void                                |
| Problematic situation    | Recognition of need for distinction |
| Institution of a problem | Drawing the mark                    |
| Determination            | Canonical form                      |

Dewey's emphasis on **continuity** (situations flowing into one another) parallels the recursive structure of nested boundaries.

## Experience and Nature

*"To exist is to be in a situation..." — Dewey*

To be distinguished *is* to exist. The mark creates existence from the void. Dewey's naturalism grounds this in biological and cultural practice: organisms survive by making effective distinctions.

## S3.2 Process Philosophy and the Mark

# Alfred North Whitehead

Whitehead's **process philosophy** [?] provides metaphysical grounding:

## Actual Entities

Whitehead's **actual entities** are the final real things: - Each actual entity *becomes* through **prehension** (grasping others) - The void corresponds to **eternal objects** (pure potentiality) - The mark corresponds to **actualization** (becoming definite)

| Whitehead       | Containment Theory           |
|-----------------|------------------------------|
| Creativity      | The capacity for distinction |
| Eternal objects | Void (potentiality)          |
| Actual entities | Marked forms                 |
| Prehension      | Enclosure (taking in)        |
| Concrescence    | Reduction to canonical form  |

## The Category of the Ultimate

Whitehead's other entities → 1. Creativity → The ultimate principle of creation

### S3.3 Neo-Materialism and Agential Realism

## Karen Barad: Intra-action

Karen Barad's **agential realism** [?] reconceives the relationship between observer, observed, and observation. The boundary is not between pre-existing entities but constitutive of entities.

### Intra-action vs. Interaction

| Traditional View     | Barad's Agential Realism | Containment Theory                |
|----------------------|--------------------------|-----------------------------------|
| Entities interact    | Entities intra-act       | Forms compose                     |
| Boundaries pre-exist | Boundaries enacted       | Mark creates boundary             |
| Observer separate    | Observer entangled       | Self-reference (imaginary values) |

### Agential Cuts

Barad's **agential cuts** determine what becomes determinate:

*"It is through specific agential intra-actions that the boundaries and properties of the 'components' of phenomena"*

## Donna Haraway: Situated Knowledges

Haraway's **situated knowledges** [?] reject the "god trick" of seeing everything from nowhere:

| God Trick         | Situated Knowledge  | Boundary Logic           |
|-------------------|---------------------|--------------------------|
| View from nowhere | View from somewhere | View from inside/outside |
| Unmarked observer | Marked observer     | Observer as form         |
| Neutral           | Positioned          | Self-referential         |

The imaginary value  $j = \langle j \rangle$  formalizes the observer observing itself—a situated, recursive position.

### S3.4 Deleuze and Immanence

## Difference in Itself

Gilles Deleuze's **philosophy of difference** [?] resonates with distinction-as-primitive:

| Representational Thought | Deleuze              | Containment Theory      |
|--------------------------|----------------------|-------------------------|
| Identity primary         | Difference primary   | Distinction primary     |
| Difference = not-same    | Difference in itself | Mark creates difference |
| Categories fixed         | Categories produced  | Forms reducible         |

## The Virtual and the Actual

Deleuze's **virtual/actual** distinction maps onto void/mark:

| Deleuze       | Spencer-Brown | Character           |
|---------------|---------------|---------------------|
| Virtual       | Void          | Real but not actual |
| Actualization | Mark-making   | Determination       |

## Intensive Differences

Deleuze's **intensive quantities** (differences that don't divide without changing nature) relate to depth in boundary logic:

- ▶ Depth = intensive magnitude
- ▶ Flattening (reduction) changes nature
- ▶  $\langle\langle a \rangle\rangle \neq \langle a \rangle \neq a$  intensively

## S3.5 Brian Massumi and Affect

# Affect and the Virtual

Massumi's **affect theory** [?] treats intensity as prior to formed content:

| Massumi             | Containment Theory      |
|---------------------|-------------------------|
| Affect (intensity)  | Void (potential)        |
| Emotion (qualified) | Form (structured)       |
| Passage             | Reduction               |
| Autonomy of affect  | Resistance to reduction |

Irreducible forms (already canonical) resist further passage—they are “stuck” affects.

## Ontopower

Massumi's **ontopower**: power operating at the level of emergence.

The capacity to make distinctions *is* ontopower—the capacity to create realities by differentiating the undifferentiated.

## S3.6 New Materialism and Matter's Agency

## Vibrant Matter (Jane Bennett)

Jane Bennett's **vital materialism** [?] attributes agency to matter itself:

| Bennett     | Boundary Logic     |
|-------------|--------------------|
| Actants     | Forms as actors    |
| Assemblages | Juxtapositions     |
| Thing-power | Reduction capacity |

Forms are not passive representations but active participants in reduction—they *do* things.

## Material Semiotics (ANT)

Actor-Network Theory's **material semiotics**: - Signs and things are equally actors - Networks are heterogeneous assemblages - Translation transforms identities

The calculus of indications is maximally material-semiotic: the notation (material marks) *is* the logic (semiotic structure).

### S3.7 Synthesis: Pragmatist-Materialist Containment

## Core Commitments

From these traditions, Containment Theory inherits:

1. **Anti-representationalism** (Pragmatism): Forms don't represent; they enact
2. **Relational ontology** (Neo-materialism): Boundaries constitute entities
3. **Process primacy** (Whitehead): Becoming precedes being
4. **Situatedness** (Haraway): Observer within system
5. **Difference primacy** (Deleuze): Distinction before identity

## The Mark as Pragmatic-Materialist Primitive

The mark ⟨ ⟩ unifies:

- **Pragmatist**: Operational definition (effects = meaning)
- **Materialist**: Physical inscription (matter makes marks)
- **Processual**: Temporal act (distinction happens)
- **Relational**: Creates relations (inside/outside)

# Research Program

This philosophical grounding suggests:

1. **Experimental Pragmatism:** Test forms by their consequences
2. **Material Practice:** Implement forms in physical media
3. **Processual Analysis:** Study reduction as temporal unfolding
4. **Ecological Thinking:** Forms in environments of other forms

### S3.8 Key Texts and Lineages

# North American Pragmatism

| Author              | Key Work   | Connection                |
|---------------------|--|---------------------------|
| C.S. Peirce         | <i>Collected Papers</i><br>(1931-58)                 | Existential graphs, icons |
| William James       | <i>Essays in Radical Empiricism</i> (1912)           | Relations as real         |
| John Dewey          | <i>Logic: The Theory of Inquiry</i> (1938)           | Inquiry as distinction    |
| George Herbert Mead | <i>Mind, Self, and Society</i> (1934)                | Self-reference            |
| Richard Rorty       | <i>Philosophy and the Mirror of Nature</i><br>(1979) | Anti-representationalism  |
| Robert Brandom      | <i>Making It Explicit</i><br>(1994)                  | Inferential semantics     |

# Process Philosophy

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| Author             | Key Work                              | Connection                  |
|--------------------|---------------------------------------|-----------------------------|
| A.N. Whitehead     | <i>Process and Reality</i><br>(1929)  | Actual entities, creativity |
| Charles Hartshorne | <i>Creative Synthesis</i><br>(1970)   | Panexperientialism          |
| Isabelle Stengers  | <i>Thinking with Whitehead</i> (2011) | Speculative philosophy      |

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# Neo-Materialism

| Author         | Key Work                                   | Connection         |
|----------------|--|--------------------|
| Karen Barad    | <i>Meeting the Universe Halfway</i> (2007) | Agential cuts      |
| Donna Haraway  | <i>Staying with the Trouble</i> (2016)     | Situated becoming  |
| Jane Bennett   | <i>Vibrant Matter</i> (2010)               | Thing-power        |
| Rosi Braidotti | <i>The Posthuman</i> (2013)                | Affirmative ethics |

# Continental Connections

| Author           | Key Work                                | Connection           |
|------------------|---|----------------------|
| Gilles Deleuze   | <i>Difference and Repetition</i> (1968) | Difference in itself |
| Brian Massumi    | <i>Parables for the Virtual</i> (2002)  | Affect, intensity    |
| Gilbert Simondon | <i>Individuation</i> (1958)             | Transduction         |
| Bruno Latour     | <i>We Have Never Been Modern</i> (1991) | Actor-networks       |