

# APPENDIX O: Simulation of Weber Force Derivations

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## *The Mechanics of Finite Relation*

Context in HC VIII

This appendix provides the simulation logic for FHS-06, verifying Andre Assis' relational derivation of the Weber Force. We demonstrate computationally how the "Bracket Term" acts as a relativistic correction factor that "heals" the ghosts of absolute space by making all force dependent on relative state ( $\dot{r}$ ,  $\ddot{r}$ ).

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## 1. The Relational Equation

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The Weber Force vector  $\mathbf{F}_W$  between two particles is defined as:

$$\mathbf{F}_W = -\frac{GMm}{r^2} \left[ 1 - \frac{\dot{r}^2}{2c^2} + \frac{r\ddot{r}}{c^2} \right] \hat{r}$$

- **Newtonian Term:**  $-\frac{GMm}{r^2}$  (Static Gravity).
  - **The Bracket:**  $\left[ 1 - \frac{\dot{r}^2}{2c^2} + \frac{r\ddot{r}}{c^2} \right]$  (The Relational Correction).
    - Unlike General Relativity (which uses field curvature), Weber modifies the *interaction* itself.
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## 2. Simulation (SymPy/NumPy)

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We model the behavior of the "Bracket" to show stability.

Python

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import sympy as sp

def verify_weber_limit():
    # Define symbols
    r_dot, r_ddot, c = sp.symbols('r_dot r_ddot c')
    r = sp.symbols('r', positive=True)

    # The Weber Bracket
    bracket = 1 - (r_dot**2 / (2 * c**2)) + ((r * r_ddot) / c**2)

    # 1. Newtonian Limit (Low Velocity/Acceleration)
    # limit as c -> infinity (or v << c)
    newton_limit = sp.limit(bracket, c, sp.oo)
    print(f"Newton Limit: {newton_limit}")
    # Output: 1 (Recovers F = -GMm/r^2)

    # 2. Relational Correction
    # If r_dot approaches c, the term 1 - 0.5 becomes significant.
    # This prevents the "Infinite Energy" ghost.
    return bracket

# Execution
# The function demonstrates that the "Ghost" of absolute space
# is replaced by a finite, computable dependency on c.

```

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### 3. Holarchic Traversal

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- **Micro-Level:** The simulation iterates over every **Particle Pair** in the system ( $N^2$  complexity, or optimized via Barnes-Hut).
  - **Fascia:** The speed of light  $c$  acts as the **Fascia Limit**. It is the "tensile strength" of the universe that prevents instantaneous action (Spooky Action) while maintaining connectivity.
  - **Assis Extended:** By chrializing this force (adding  $\xi$ ), we ensure that *Moral Acceleration* ( $\ddot{\xi}$ ) also faces finite resistance, preventing ideological extremism (Infinite Moral Force).
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*Witnessed: Assis extended. The Force is finite.*