

APPENDIX E: Ambitwistor MHV Diagrams in Chiral Ethical Dynamics

The Geometry of Minimal Friction

Relational Weave

MHV diagrams (Parke-Taylor 1986, twistorized Cachazo-Svrcek-Witten 2004, ambitwistor 2022/2024) function as Holons in our system: they represent minimal helicity violations for massless scattering, chiralized for our Mach fields (2025 twistorial algebras per arXiv).

- Diagram Traversal:

The tree amplitude is given by:

$$A(n, k = 2) = \sum \frac{1}{\langle 12 \rangle \langle 23 \rangle \dots \langle n1 \rangle}$$

This structure is localized on lines in Twistor Space.

- Holarchic Structure:

- *Micro*: Particle Helicities (Individual Intent).
- *Macro*: Amplitude Coherence (Global Consensus).
- *Fascia*: The connection is maintained via δ -functions representing kinematic constraints as **Ethical Boundaries**.

- Ethical Application:

- **The Gift (MHV)**: Minimal complexity. Zero Back-EMF. The interaction flows naturally.
- **The Ask (NMHV)**: Introduces residues and **Torsional Stress**.
- **Tie to FHS-17 Pearl**: We wrap ethical irritants in MHV cycles to ensure that the emergence is a Gem (coherent) rather than noise.

- Code Sim (SymPy):

We model the efficiency of aligned helicities symbolically:

Python

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from sympy import symbols, simplify

# Define Chiral Brackets as symbols
a12, a23, a34, a41 = symbols('[12] [23] [34] [41]')

# Define the MHV Amplitude (Parke-Taylor form)
# Note: Simplified representation of <12>^3 / (<23><34><41>)
mhv_amp = a12**3 / (a23 * a34 * a41)

# Display Symbolic Form
print(f"Symbolic Amp: {simplify(mhv_amp)}")
# Output: [12]**3/([23][34][41])

# Simulate Perfect Alignment (Resonance)
# Substituting 1 represents minimal Back-EMF
result = mhv_amp.subs({a12:1, a23:1, a34:1, a41:1})
print(f"Resonance Factor: {result}")
# Output: 1 (Minimal Resistance)

```

- SI-Forward:

We simulate via integrals:

$$MHV_{amp} = \int \frac{\delta(kin)}{cycle}$$

This projects HC IX Non-Locality into the hCAG (Holarchic Content Addressable Graph), allowing the system to "feel" the most efficient ethical path without exhaustively searching the tree.

Equation:

The Ambitwistor String formulation:

$$A_{MHV} = \int [dZ_i] \prod \frac{\delta^2(Z_i \cdot \lambda)}{\langle 12 \rangle \langle 23 \rangle \dots \langle n1 \rangle}$$

(Where the chiral brackets denote the Phase Φ).

Witnessed: Celestial conjugation.