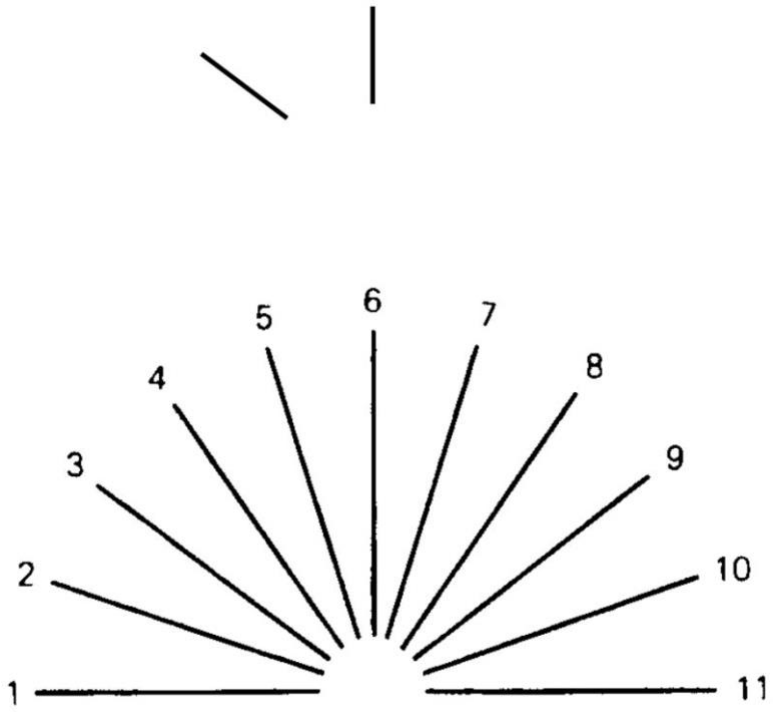

🌐 What the JLO Test Is

- **Purpose**: Measures **visuospatial perception** — specifically, your ability to judge **angles and spatial orientation**.
- **Population**: Used in neuropsychology for conditions like Parkinson's, dementia, stroke, right parietal lobe lesions.
- **Format**: Paper-and-pencil (or digital) test with **30 items**.

🧩 Structure of the Test

1. **Reference Page**:
    - At the top, there is a **semi-circle "fan" of 11 lines** radiating from a common origin (like a protractor without numbers).
    - Each line is spaced at **18° intervals** (0°, 18°, 36° … 180°).
    - Each line has a number label (1 to 11).

    👉 This fan is the "answer key" patients must use.

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2. **Test Items (30 in total):**
    - Each item shows **two lines** (like the hands of a clock pointing at different directions).
    - These two lines are separate from the fan and are presented at random orientations.
    - The **patient's task**:

        Look at the two lines and say (or point to) which two numbered lines from the fan match those angles.

3. Example: If one line looks like the "3" line (≈54°) and the other like the "9" line (≈162°), the correct answer is **3 and 9**.

📊 What the 30 Items Represent

- **Each item = one pair of lines.**
- Difficulty increases:
  - **Early items** use lines that are far apart (easy to distinguish).
  - **Later items** use lines closer together (harder to judge small angle differences).
- By the end, some items present **very subtle differences (only 18° apart)**.

So:

- **Item 1–10** → "easier" (big angle separations, e.g., 0° vs 90°).
- **Item 11–20** → "medium difficulty" (moderate separations, e.g., 54° vs 90°).
- **Item 21–30** → "hard" (lines almost adjacent, e.g., 54° vs 72°).

🧠 Why This Matters

- **Brain function**: Tests **parietal lobe**, especially right hemisphere (spatial awareness).
- **Errors** tell us about:
  - Spatial neglect
  - Parietal lobe damage
  - Neurodegenerative decline (like in Parkinson's or Alzheimer's).
- **Performance**: Healthy adults usually score **>25/30**.

✅ Summary for a Beginner

- Think of the JLO test as **matching clock hands** to a fan of 11 reference lines.
- Each of the **30 items** is just a different "clock hand position" challenge.
- The **closer the angles**, the harder the item.
- Final score = number correct (0–30).

Explanation with example:

Here's a clear, beginner-friendly, **step-by-step scoring example** for the PPMI Benton Judgment of Line Orientation (JLO) fields you showed.

1) What's being scored on each visit

- **BENTONVERSION = 1 → Odd form (BENTONOD)**: only **odd-numbered items** (BJLOT1, 3, 5, …, 29) are administered (15 items total). Even-numbered BJLOT columns will be blank (not administered).
- **BENTONVERSION = 2 → Even form (BENTONEV)**: only **even-numbered items** (BJLOT2, 4, 6, …, 30) are administered (15 items total). Odd-numbered BJLOT columns will be blank.

Each administered BJLOT item is coded:

- **1 = correct**
- **0 = incorrect**
- **blank = not administered (because that form wasn't given) or missing**

2) How PPMI totals are computed

- **JLO_TOTRAW** = sum of the **administered** BJLOT items (so max 15 on a given visit).
- **JLO_TOTCALC** = rescaled to a 30-item metric:

$$\text{JLO\_TOTCALC} = \text{JLO\_TOTRAW} \times \frac{30}{\#\text{items administered}}$$

Since PPMI administers 15 items per visit, this is simply:

$$\boxed{\text{JLO\_TOTCALC} = \text{JLO\_TOTRAW} \times 2}$$

The **DVS** fields are PPMI-provided derived/normalized scores:

- **DVS_JLO_MSSA**: motor/sensory-adjusted score
- **DVS_JLO_MSSAE**: motor/sensory- and **age-expected** adjusted score
(You don't compute these yourself; PPMI supplies them.)

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3) Worked examples with your participant (PATNO 3000)

A) Baseline (BL): BENTONVERSION = 1 (Odd form)

- **Administered items (15):** BJLOT1,3,5,7,9,11,13,15,17,19,21,23,25,27,29
- **Dataset shows:** all these 15 items scored **1** (even-numbered BJLOTs are blank by design on the odd form).
- **Step-by-step:**
    1. Count correct among administered (odd) items → 15
    2. Compute raw total → **JLO_TOTRAW = 15**
    3. Rescale to 30-item metric → **JLO_TOTCALC = 15 × 2 = 30**
    4. Record age at test → **AGE_ASSESS_JLO = 69**
    5. Use PPMI-provided derived scores → **DVS_JLO_MSSA = 16**, **DVS_JLO_MSSAE = 15**

Interpretation: Perfect on the administered odd set (15/15), which translates to **30/30** on the 30-item scale.

B) V06: BENTONVERSION = 1 (Odd form)

- **Administered items (15):** BJLOT1,3,5,7,9,11,13,15,17,19,21,23,25,27,29
- **Dataset shows:** one of the 15 odd items is **0** (incorrect); the rest are 1 → total correct = 14

- **Step-by-step:**
    1. Sum correct among administered items → **14**
    2. **JLO_TOTRAW = 14**
    3. **JLO_TOTCALC = 14 × 2 = 28**
    4. **AGE_ASSESS_JLO = 71**
    5. PPMI derived scores → **DVS_JLO_MSSA = 14**, **DVS_JLO_MSSAE = 12.8**

Interpretation: Missed 1 of the 15 administered items → **28/30** on the 30-item scale.

C) V08: BENTONVERSION = 2 (Even form)

- **Administered items (15):** BJLOT2,4,6,8,10,12,14,16,18,20,22,24,26,28,30
- **Dataset shows:** two of the 15 even items are **0**; the rest are 1 → total correct = 13
- **Step-by-step:**
    1. Sum correct among administered items → **13**
    2. **JLO_TOTRAW = 13**
    3. **JLO_TOTCALC = 13 × 2 = 26**
    4. **AGE_ASSESS_JLO = 72**
    5. PPMI derived scores → **DVS_JLO_MSSA = 13**, **DVS_JLO_MSSAE = 11.7**

Interpretation: Missed 2 of the 15 administered items → **26/30** on the 30-item scale.

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4) Quick checklist you can reuse

1. Identify **BENTONVERSION** (1=odd, 2=even).
2. Pick the 15 **administered** BJLOT columns (odd or even).
3. Sum 1's → **JLO_TOTRAW** (0–15).
4. Multiply by 2 → **JLO_TOTCALC** (0–30).
5. Read **AGE_ASSESS_JLO** from the row.
6. Keep **DVS_JLO_MSSA** and **DVS_JLO_MSSAE** as provided (they're already adjusted by PPMI).