**Run/S&P/Unknown Classification Algorithm**

The purpose of this algorithm is to analyze a contest log and infer the operator's activity for each contact, classifying it as one of three types: **Run**, **Search & Pounce (S&P)**, or **Unknown**.

The analysis is performed independently for each operating "stream"—a unique combination of a band and mode (e.g., 20M CW is one stream, 40M SSB is another). The algorithm uses a two-pass approach.

**Pass 1: Initial Classification (Run vs. S&P)**

The first pass uses a "sticky run" state machine to make an initial classification.

1. **Identifying a Run:** A "run" is defined as a period of high-rate activity on a single frequency. The algorithm identifies the start of a run when it detects a minimum number of QSOs (typically 3) occurring on the same frequency within a short time window (e.g., 10 minutes).
2. **The "Sticky" State:** Once a run is identified, the algorithm enters a "run state." It assumes the operator is still running and will continue to classify all subsequent QSOs on that frequency as **Run**.
3. **Breaking a Run:** The run state is maintained until one of two conditions is met:
   * **Time-Out:** A significant amount of time (e.g., 2 minutes) passes without a QSO on the run frequency.
   * **Frequency Change:** The operator makes several consecutive QSOs on other frequencies, indicating they have moved to search for new contacts.
4. **S&P Classification:** Any QSO that is not part of an identified run is initially classified as **S&P**.

**Pass 2: Reclassification of Low-Rate QSOs**

The second pass refines the results by identifying periods of very low activity where the operator's intent is ambiguous.

1. **Reviewing S&P QSOs:** The algorithm re-examines only the QSOs that were classified as **S&P** in the first pass.
2. **Checking the Rate:** For each S&P QSO, it looks at the number of other contacts made in a time window both before and after it (e.g., 15 minutes).
3. **Reclassifying to Unknown:** If the QSO rate in the surrounding period is below a certain threshold, the activity is considered too low to be definitively classified. In this case, the QSO's status is changed from **S&P** to **Unknown**.

The final output is a log where every contact is annotated with its inferred operating style: Run, S&P, or Unknown.