FDML Core — Narrative Progress Report

(to 28 Oct 2025)

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1 Project Context & Objectives

The FDML project aims to define a compact, machine- and human-friendly representation for folk dance material and to provide a practical toolchain around it: schema validation (XSD + Schematron), a command-line interface (CLI), and a publishing flow (XSLT renderer to web cards and PDF export). The intended outcomes are (i) a consistent data standard for dance material and (ii) a reproducible software pipeline that can validate, render and publish a curated corpus.

2 What Was Delivered This Sprint (Narrative)

2.1 Schema & Validation

We finalised an *XML Schema Definition* for FDML (`schema/fdml.xsd`) expressing the core structure (meta, body with figures/sections/sequences). We complemented it with compiled Schematron rules (`schematron/fdml-compiled.xsl`) to enforce business constraints (e.g., non-empty `meta/title`; unique figure IDs; steps have positive beats; sequence references must point to existing figures). This combination provides orthogonal guarantees: XSD for structure and typing; Schematron for semantics. Validation behaviour is *deterministic*: 12 valid samples pass, 7 intentionally invalid samples fail with clear messages.

2.2 CLI Tooling (`fdml-core.jar`)

We packaged a shaded JAR exposing the commands: `validate`, `validate-sch`, `validate-all`, `render`, `export-pdf`, `index`, `lint`, `init`, `doctor`.

- **Design** Commands are cohesive, single-purpose; outputs are stable for CI. `index` gathers a machine-readable `site/index.json`; `lint` provides advisory checks (e.g. off-meter totals); `doctor` is a strict gate combining XSD + Schematron + Lint.
- **Packaging** `maven-shade-plugin` embeds dependencies and sets the main class (`org.fdml.cli.Main`); wrapper script `bin/fdml` runs the JAR under OpenJDK 17.

2.3 Web Publishing (Cards + Site)

We built an XSLT card renderer and a `scripts/build_index.sh` site builder. Pages are styled via a single CSS with cache-busting tokens. Cards originally linked to `../style.css?V`; during local `file://` testing Safari blocked parent references. We corrected this by linking cards to a *local* stylesheet (`./style.css?${cssVersion}`) and shipping a copy at `site/cards/style.css`. We also fixed all intra-site links so that the card header (brand & "Examples") and footer back-link go to `../index.html`, and added a direct `../search.html` link.

2.4 Professional Search Page

The first search prototype was functional but basic and occasionally produced broken links because it transformed `*.fdml.xml` to `*.fdml.fdml.html`. We replaced it with a styled grid view that matches the homepage aesthetics and corrected mapping to `*.fdml.html`. The builder now emits `site/index.json` *and* ships a cache-busted `search.html` every build; the page shows "12 of 12 item(s)" and supports live filtering by title/file/section IDs.

2.5 Release & Homebrew Tap

We cut a release tag **v0.3.4** (CLI JAR attached), calculated SHA256 and updated the nested `homebrew-fdml` tap formula to point at the new artifact. During the tap update we encountered two issues: (i) an escaped Ruby interpolation in the wrapper script; (ii) tap divergence causing a push rejection. We resolved both by resetting to `origin/main`, rewriting the formula cleanly with correct Ruby interpolation, and pushing. A local reinstall via Homebrew confirmed `fdml 0.3.4` is installable and working with OpenJDK 17.

3 Key Technical Decisions & Rationale

- **Validation split (XSD + Schematron).** XSD encodes structural guarantees; Schematron captures cross-field constraints and human-friendly messages. This yields clearer failures and easier future rule additions.
- **Deterministic outputs.** All loops and file-ordering steps are sorted; cache-busting is parameterised; `index.json` content is stable for unit tests and CI diffs.
- **Local CSS on cards.** Serving `file://` in Safari is notoriously strict; shipping `site/cards/style.css` eliminates path traversal issues and keeps local/HTTP behaviours aligned.
- **Builder robustness.** The builder never nukes `site/` wholesale; it rebuilds `site/cards/`, ships Search, and emits `index.json` in one place to avoid race conditions.

4 Issues Encountered & How We Resolved Them

Issue	Resolution
Cards unstyled on `file://` in Safari	Switched to `./style.css?${cssVersion}` and shipped `site/cards/style.css`.
Broken search links (`fdml.fdml.html`)	Corrected mapping: `*.fdml.xml` → `*.fdml.html`.
Search showed 0/0 items	Builder now emits `site/index.json` after copying cards; Search fetch succeeds.
Tap update rejected (divergence)	Hard reset to `origin/main`; rewrote formula; pushed cleanly.
Wrapper interpolation literal	Removed escaping so Homebrew writes the correct Java path at install-time.

5 Verification Evidence (selected)

- **Corpus:** 12 valid samples & 7 invalid samples behave deterministically (valid pass; invalid fail with XSD/Schematron messages).
- **Site:** `make clean html` builds cards, `index.html`, `search.html`, and `index.json`. Local `make serve` confirms navigation and search.

- **Release:** Tag **v0.3.4** live; SHA256: `477c6d08f41798228abb6e1414d83e4e7d67392b5319ccd7371a1fe55` Tap reinstalls `fdml 0.3.4` successfully.
- **Commits:** site nav/search links (`cd6faea`); search grid + builder hardening (`ca25c65`); emit `index.json` during build (`a2f3cc1`); cache-busted CSS in cards (`d08e131`); make target `serve`; LaTeX report v1 compiled and v2 produced.

6 Repository & Environment

- **Repo:** `~/Projects/fdml-core` (`main`).
- **Toolchain:** OpenJDK 17.0.16; Maven 3.9.11; Node 20.18.0; libxslt 1.1.35; latexmk 4.83; macOS 14.3.

7 Plan for the Next Two Weeks

1. **Corpus Growth (to ≥ 30):** add varied formations, longer sequences; expand invalid set (edge cases).
2. **Schematron Enhancements:** friendlier messages; checks for per-figure meter totals and duplicate steps; section coverage.
3. **PDF Export:** polish page-breaks & typography; CI artifacts for all examples.
4. **Documentation:** author "Authoring FDML", "Validator usage", and "Renderer/Export" tutorials; link from homepage.
5. **CI Guardrails:** strengthen `scripts/ci_verify.sh` to assert CSS links present on several cards and that Search is shipped.

8 Appendix — Prior Report Reference

This report supersedes the brief Week-5 summary while keeping its scope. The prior document remains available in the repository for traceability.[1]

[1] Prior PDF: `docs/progress-report/week05_progress.pdf`.