Translation Action

AI-Powered Translation Automation for Lectures

GitHub Action • Claude Sonnet 4.5 • MyST Markdown

QuantEcon Project

What It Does

Automatically translates and reviews lectures when source content changes

Monitor merged PRs → Detect changes → Translate → Create PR → AI Review

Key Capabilities

✓ **Smart Diff Translation** – Only translates modified sections
✓ **MyST Markdown Aware** – Preserves code, math, directives
✓ **Consistent Terminology** – Built-in glossaries (357 terms)
✓ **AI-Powered Review** – Automated quality assessment with scoring
✓ **Language Extensible** – Configurable rules per target language

How It Works

Section-Based Translation Approach

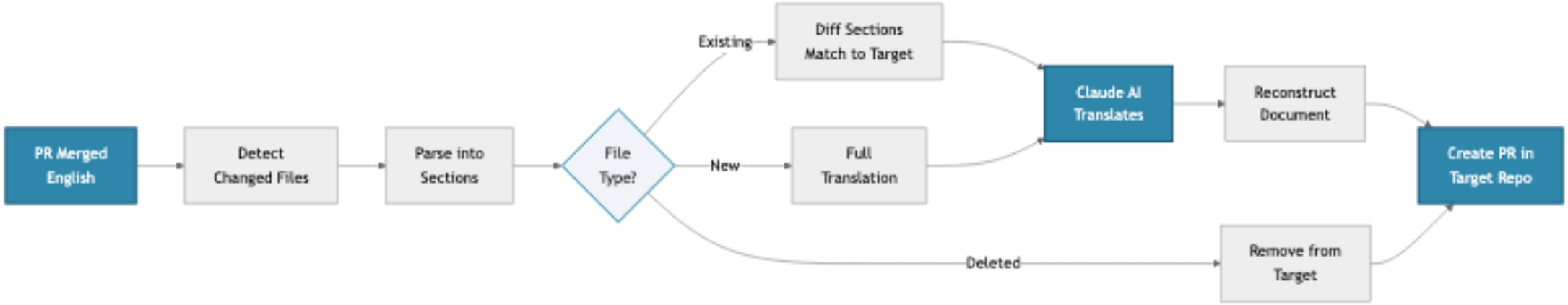
❌ Problem: Block-Level

- Can't match across languages
- Loses translation context
- Complex mapping logic

✅ Solution: Section-Based

- Match by position
- Translate full sections
- Simple: Add, Update, Delete

Translation Workflow



LLM-Powered Translation (Claude Sonnet 4.5)

UPDATE Mode

(changed sections)

- Sends: old EN + new EN + current translation
- Claude understands what changed
- Preserves style and terminology
- Uses glossary for consistency

NEW Mode

(new sections)

- Translates with full context
- Uses glossary for consistency
- Maintains document structure

Two Operational Modes

🔄 Sync Mode

(runs in SOURCE repo)

- Monitors merged PRs
- Detects changed sections
- Translates incrementally
- Creates PR in target repo
- Updates heading-maps

📝 Review Mode

(runs in TARGET repo)

- Evaluates translation PRs
- Scores: accuracy, fluency, terminology
- Checks diff correctness
- Posts review comments
- PASS / WARN / FAIL verdicts

Status & Getting Started

Current Status

📦 **v0.7.0** – Testing & Development
🔄 **Two Modes**: Sync + Review
✅ 183 tests passing
🧪 24 GitHub test scenarios

Use Cases

- Multi-language documentation
- Educational content
- OSS localization

Resources

GitHub: QuantEcon/action-translation

Docs: 11 guides in `docs/`

Tools: Bulk translator, test framework

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