

# Translation Sync Action

AI-Powered Translation Automation for Documentation

GitHub Action • Claude Sonnet 4.5 • MyST Markdown

*QuantEcon Project*

# What It Does

**Automatically translates documentation when source content changes**

Monitor merged PRs → Detect changes → Translate → Create review PR

## Key Capabilities

- ✓ **Smart Diff Translation** – Only translates modified sections
- ✓ **Recursive Subsections** – Full support for nested headings (##-#####)
- ✓ **Language Configuration** – Extensible system for language-specific rules
- ✓ **MyST Markdown Aware** – Preserves code, math, directives
- ✓ **Consistent Terminology** – Built-in glossaries (355+ terms for zh-cn)
- ✓ **Review Workflow** – All translations go through PR review
- ✓ **GPT5 Validated** – 100% pass rate on comprehensive test suite

# How It Works

## Section-Based Translation Approach

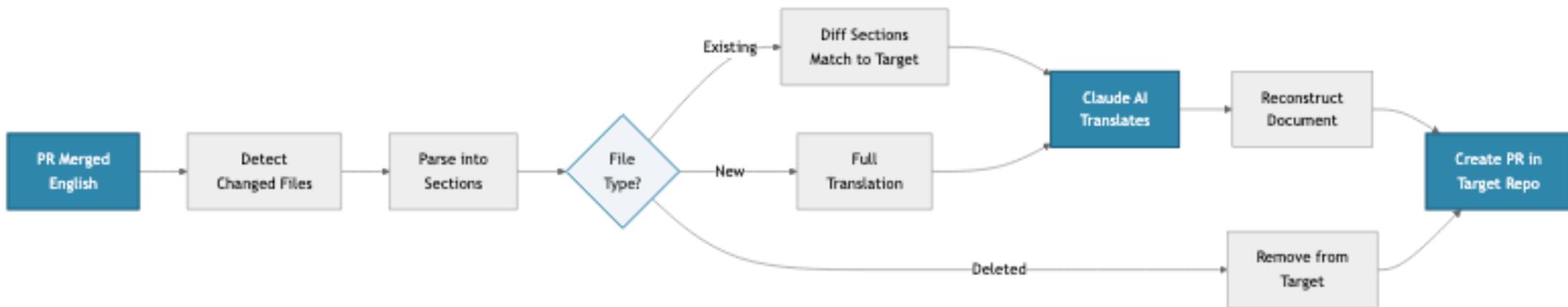
### ✗ Problem: Block-Level

- 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

# Status & Getting Started

## Current Status

-  v0.5.1 – Testing and Development
-  Language-Extensible Architecture
-  147 tests passing (100%)
-  24 GitHub test scenarios

## Use Cases

- Multi-language documentation
- Educational content (QuantEcon lectures)
- Technical documentation

## Resources

### GitHub

[quantecon/action-translation-sync](https://github.com/quantecon/action-translation-sync)

### Docs

10 comprehensive guides in `docs/`

### Tools

- Bulk translator for initial setup
- GitHub testing framework

### License

MIT