

# ECMAScript Observations



# Stages



- Stages:
  - Inactive
    - Currently not being worked on.
  - Stage 0
    - This is a new proposal. It is not currently being considered by the committee.
  - Stage 1
    - This proposal is under consideration. The committee expects to devote time to examining the identified problem space, the full breadth of possible solutions, and cross-cutting concerns.
  - Stage 2
    - The committee has chosen a preferred solution or solution space, but the design is a draft and may still change significantly. The committee expects the feature to be developed and eventually included in the standard, but due to reasons that may not be apparent at this stage, the feature may never be included in the standard.
  - Stage 2.7
    - The proposal is approved in principle and undergoing validation. The solution is complete and no further work is possible without feedback from tests, implementations, or usage. No changes to the proposal will be requested by the committee aside from those elicited through testing, implementation, or usage experience.
  - Stage 3
    - The proposal has been recommended for implementation. No changes to the proposal are expected, but some necessary changes may still occur due to web incompatibilities or feedback from production-grade implementations.
  - Stage 4
    - The proposed feature is complete and ready to be included in the standard. No further changes will be made to the proposal.

# Classifications

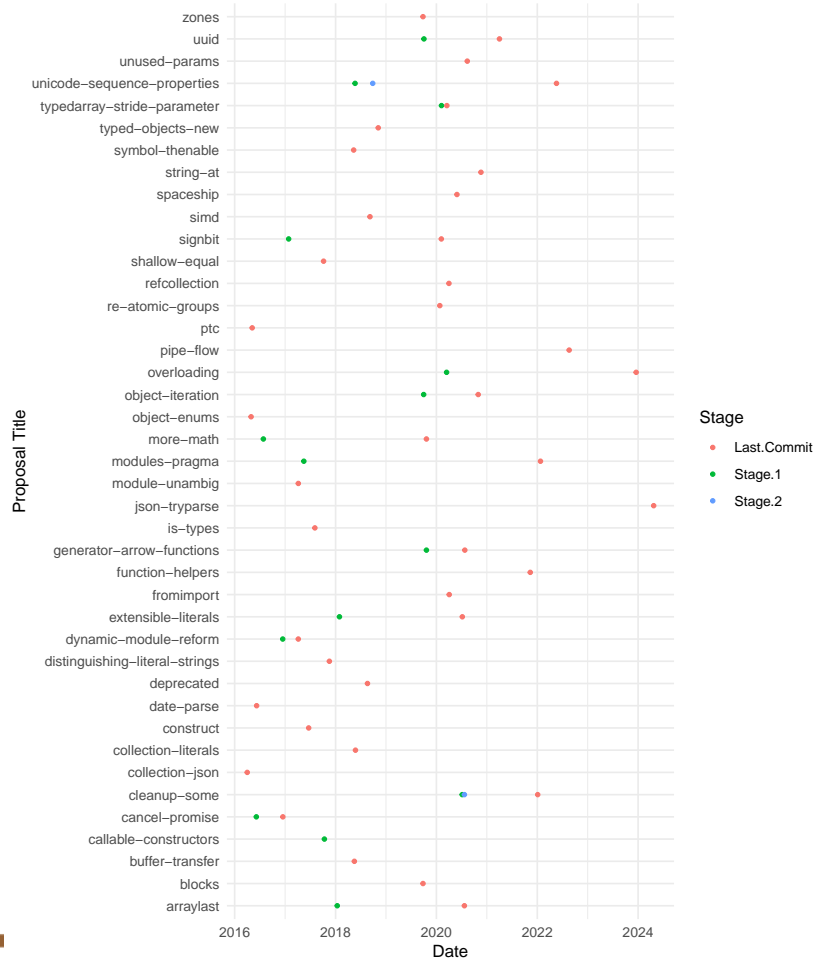


- API Change
  - Modifies or introduces new functions, objects, or methods in the standard library. These changes do not affect the syntax of the language but add new functionality to existing features.
- Semantic Change
  - Changes the meaning of the JavaScript code even if the syntax remains the same. These changes can alter the behavior of existing JavaScript programs in subtle or breaking ways. Usually involves modifying execution rules rather than introducing new syntax.
- Syntactic Change:
  - Introduces new syntax or modifies existing syntax rules. Usually involves new keywords, operators, or expressions. These changes often require updates to parsers and affect how JavaScript code is written.

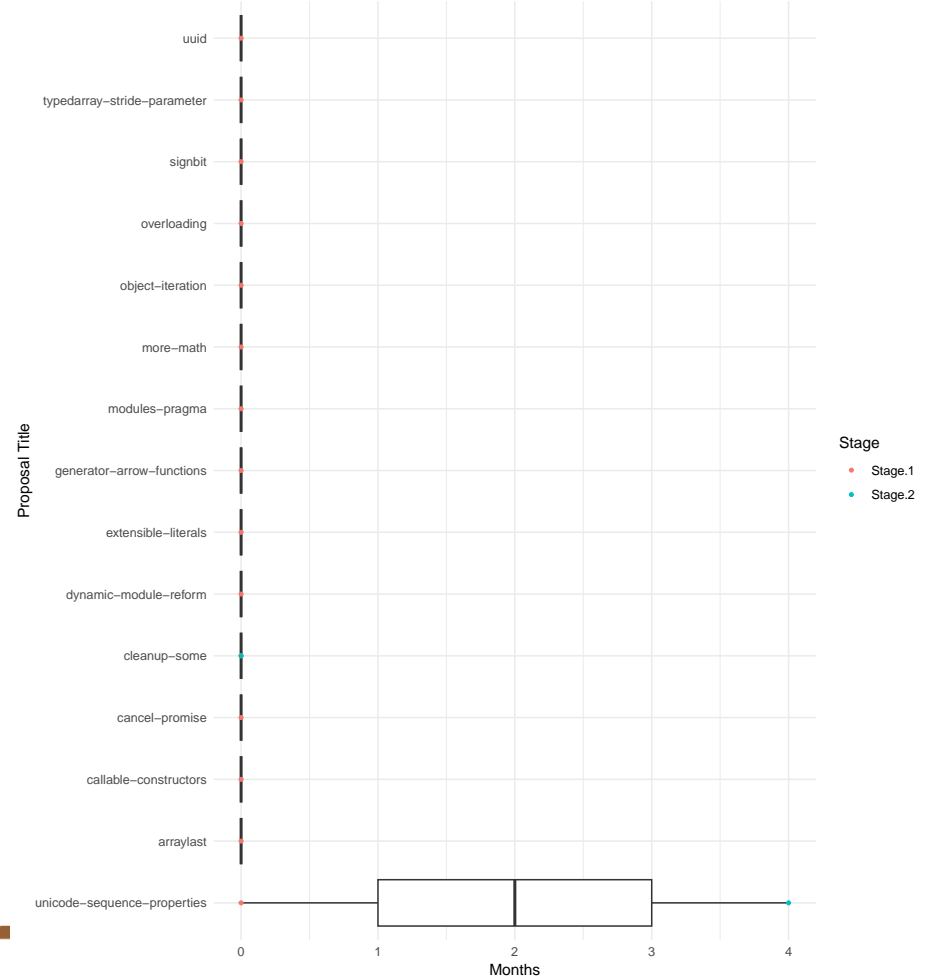
# Inactive



Inactive Proposal Timeline by Title

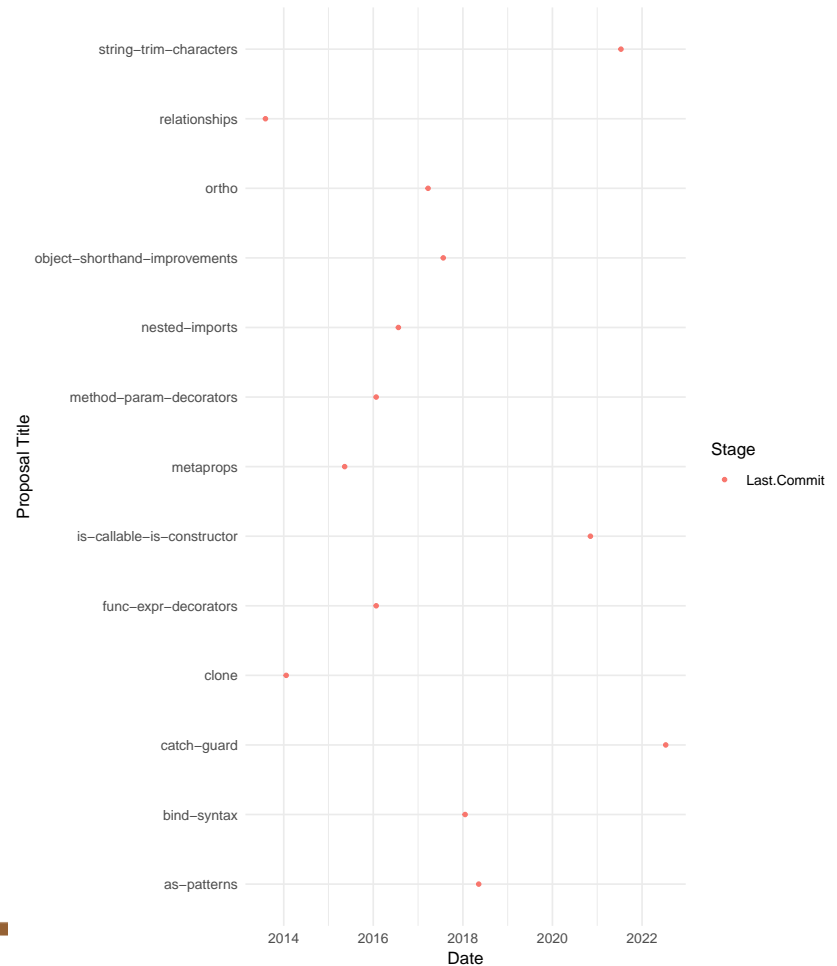


Inactive Proposals Date Spread per Proposal



# Stage 0

Stage 0 Proposal Timeline by Title



# Stage 1

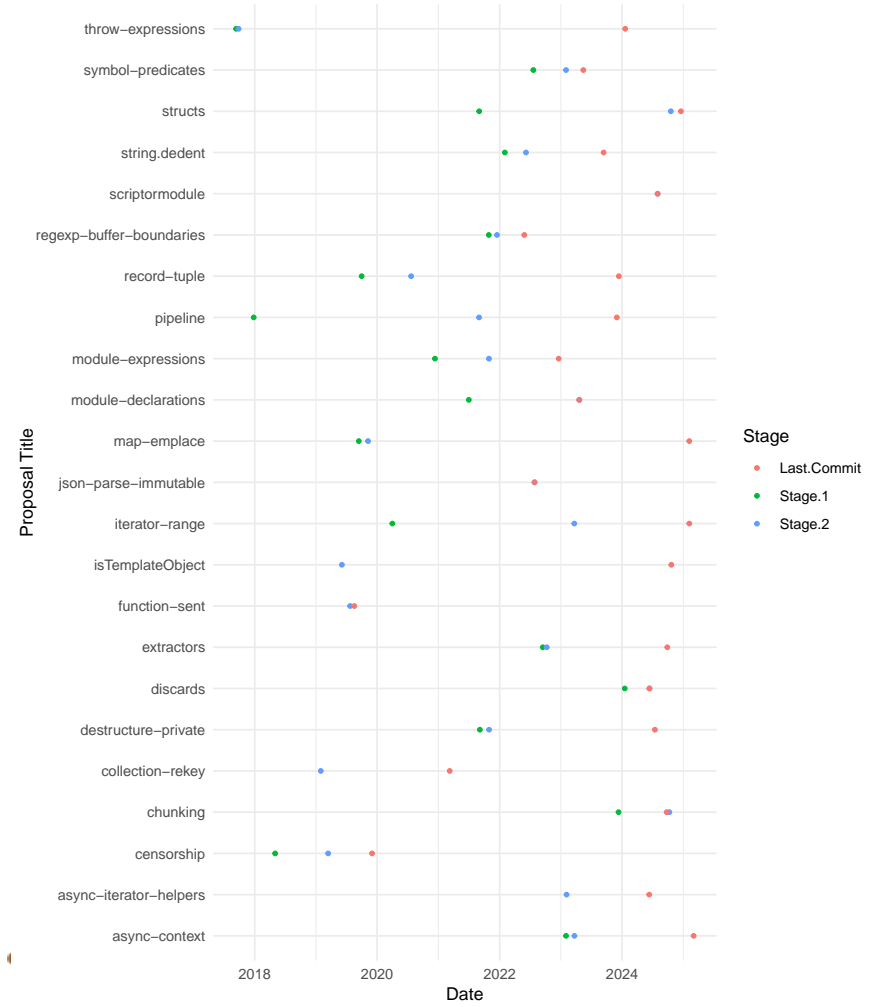
Stage 1 Proposal Timeline by Title



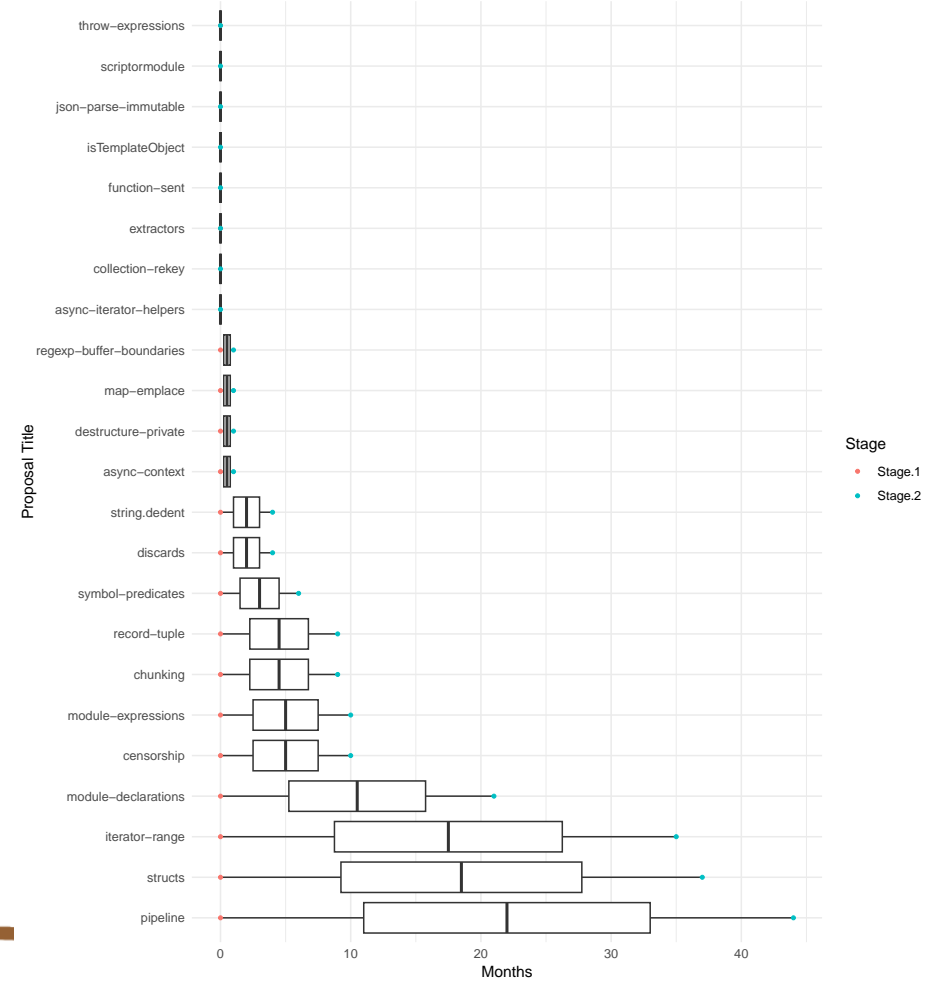
# Stage 2



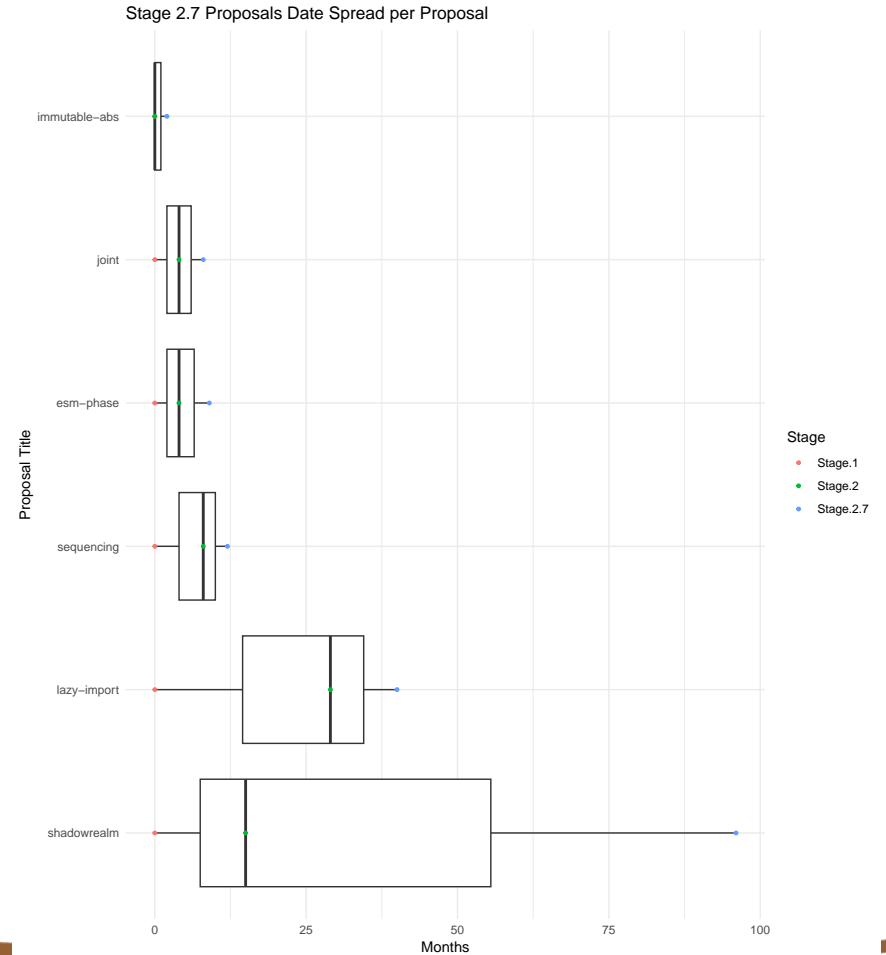
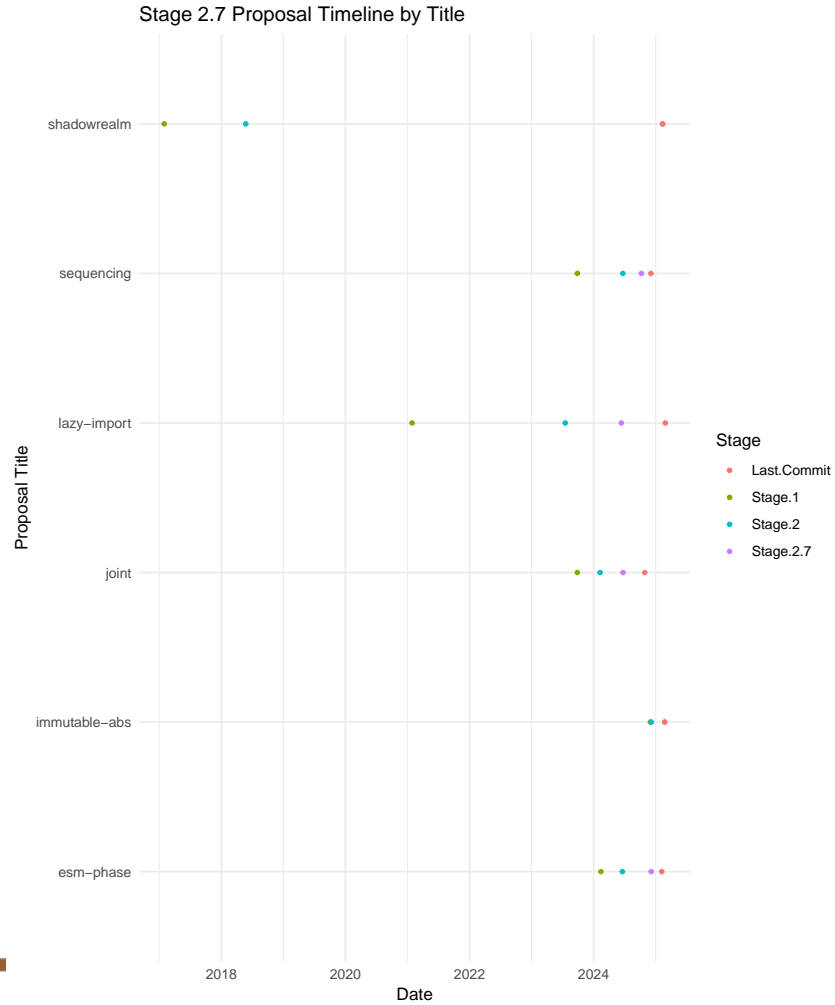
Stage 2 Proposal Timeline by Title



Stage 2 Proposals Date Spread per Proposal



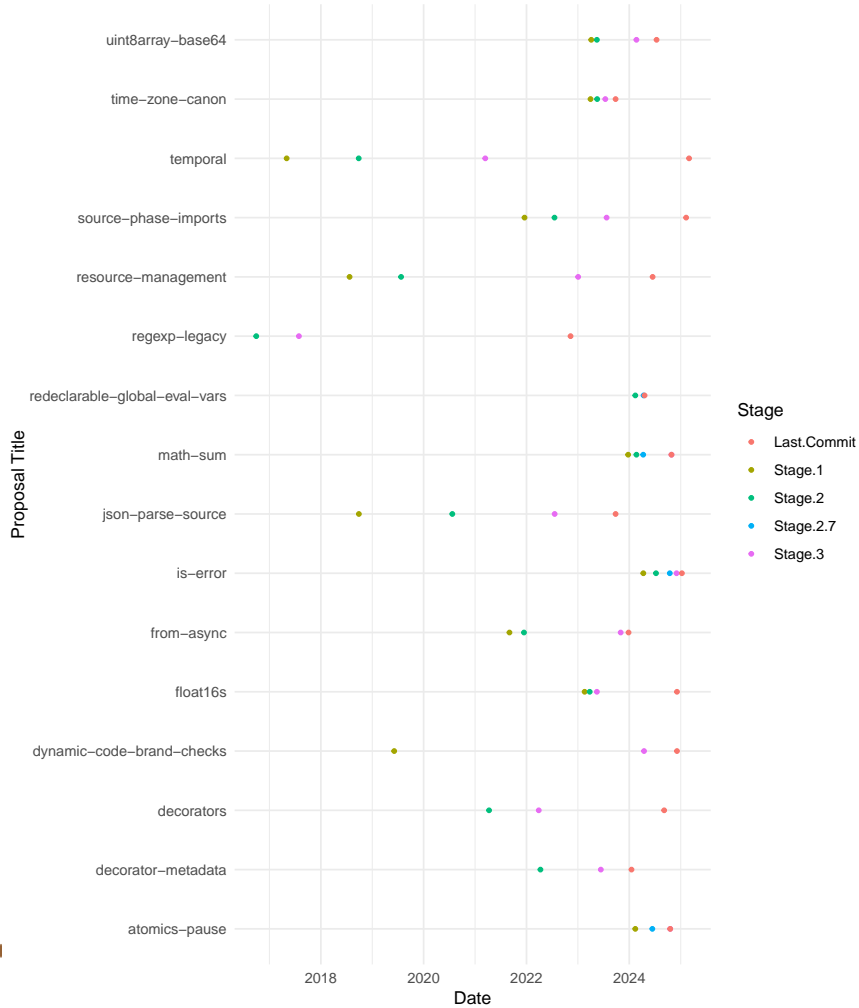
# Stage 2.7



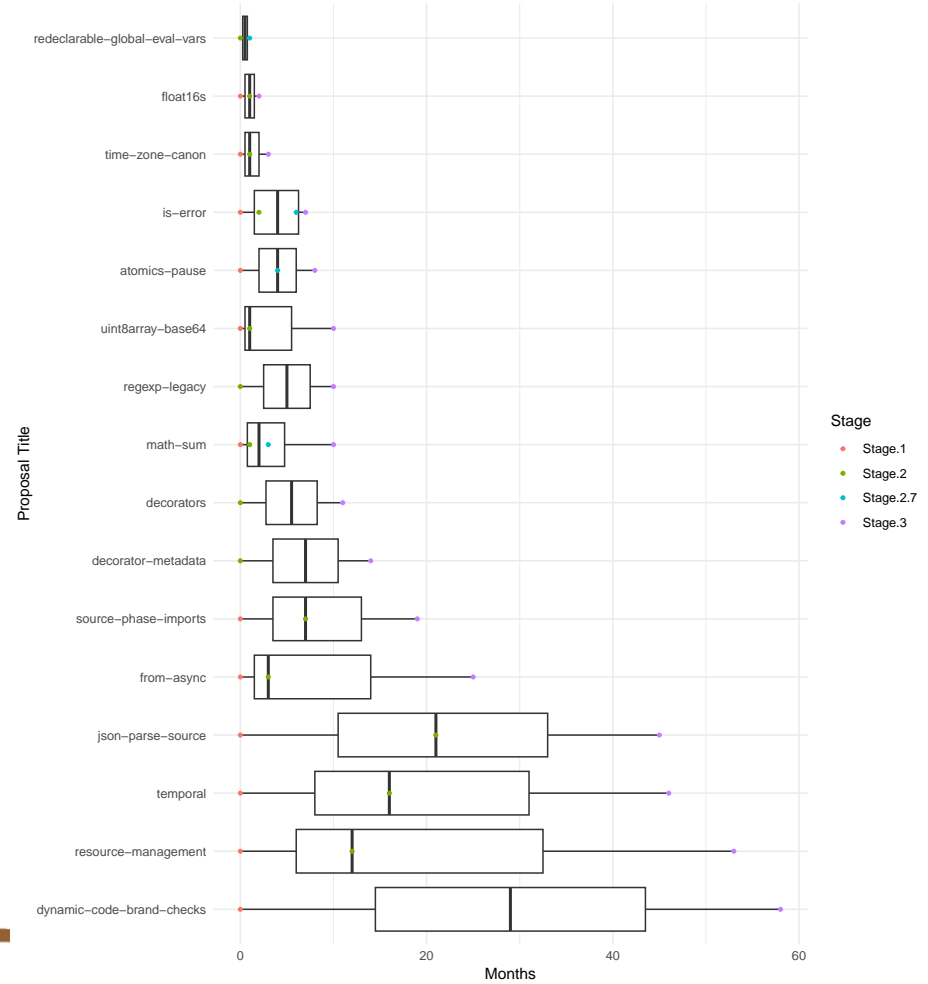
# Stage 3



Stage 3 Proposal Timeline by Title



Stage 3 Proposals Date Spread per Proposal

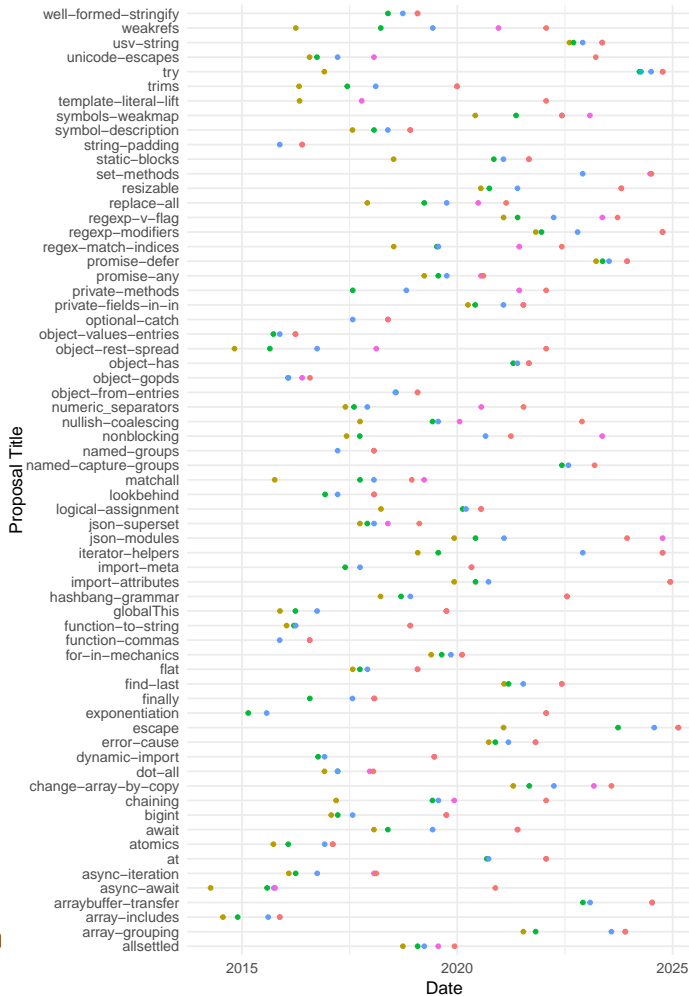




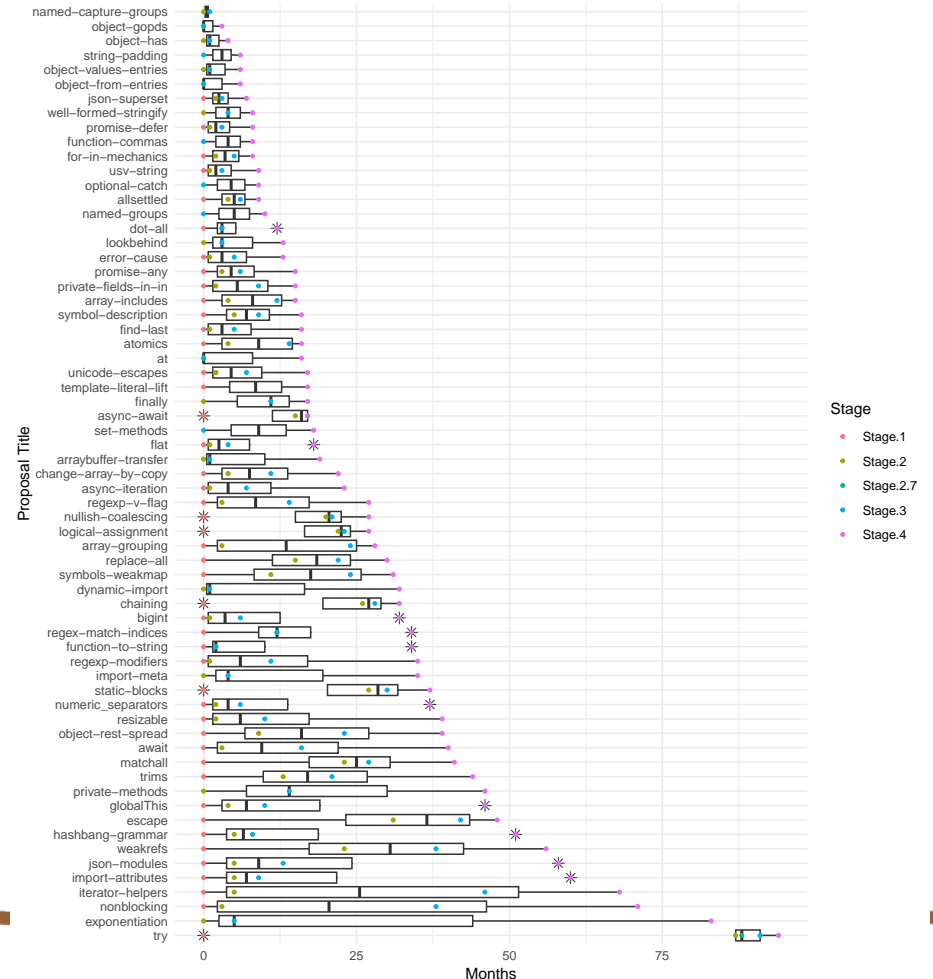
# Stage 4



Stage 4 Proposal Timeline by Title



Stage 4 Proposals Date Spread per Proposal

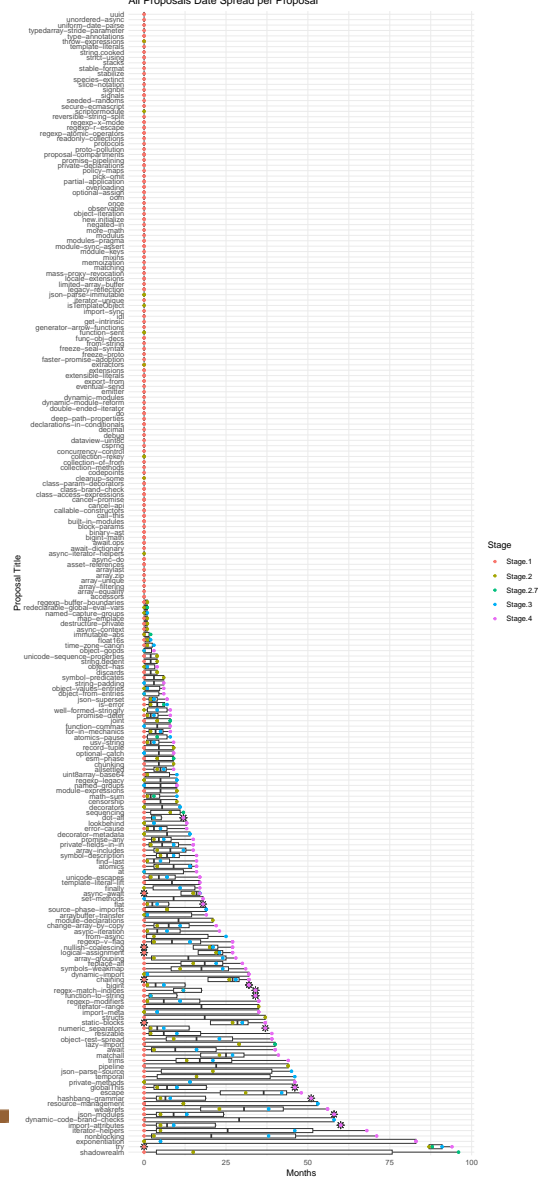




# All together

What data can be extracted?

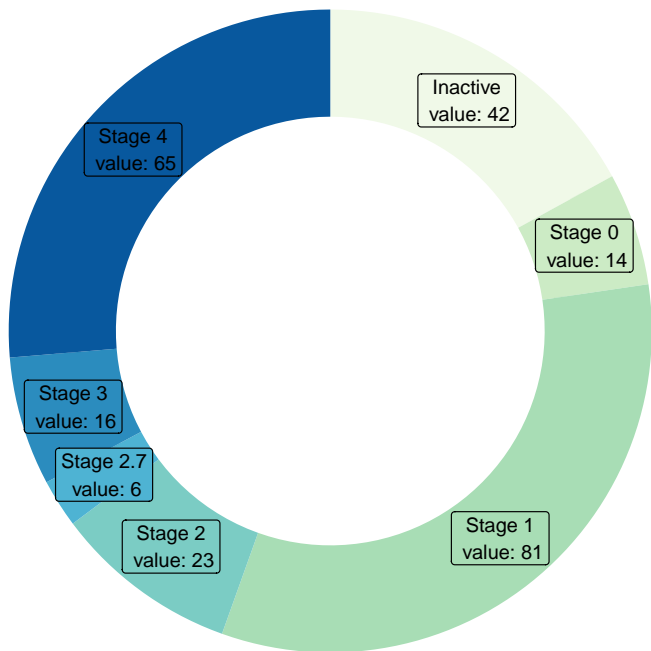
- Classifications
- Stage distribution
- Average duration per stage



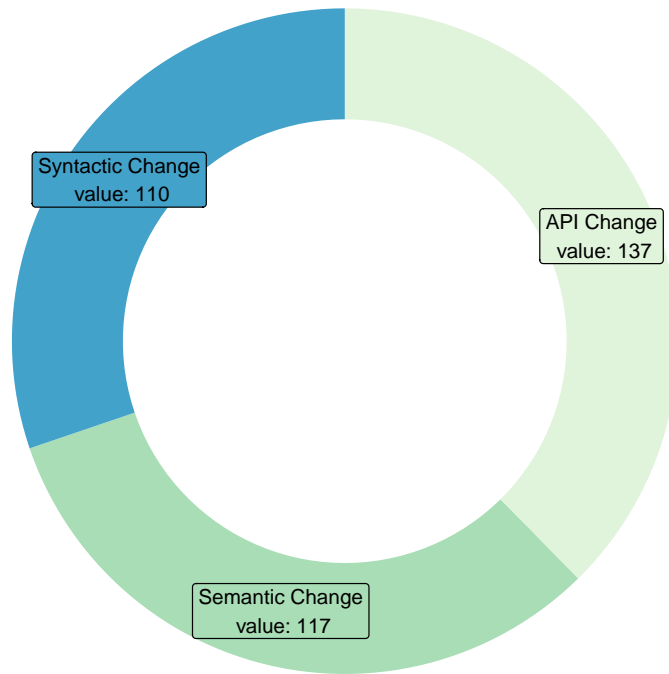
# For starters



- Total number of proposals: 257



- Per Classification:



Note: Proposals can overlap classifications

## Lets look at Stage 4

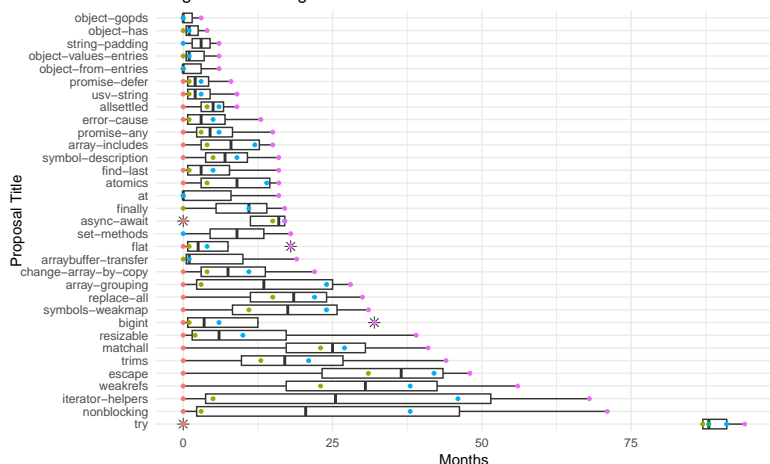


- Most complete data set
- Data gets skewed by the earlier stages

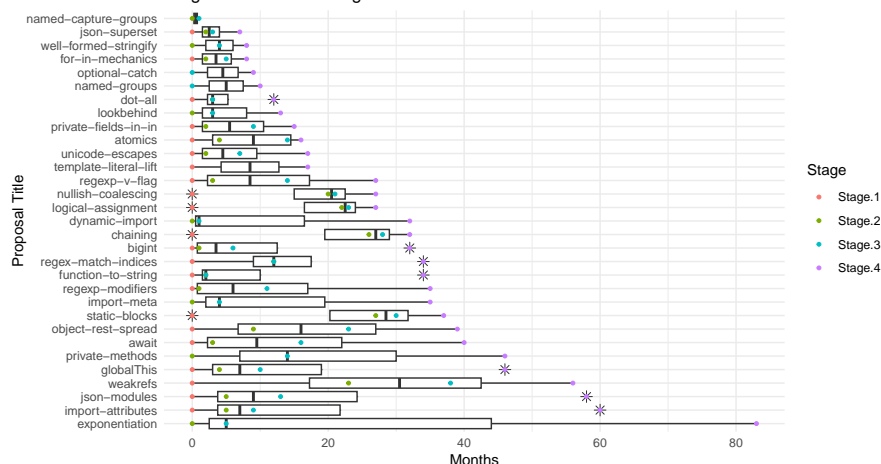
# Stage 4: Average Duration per Change



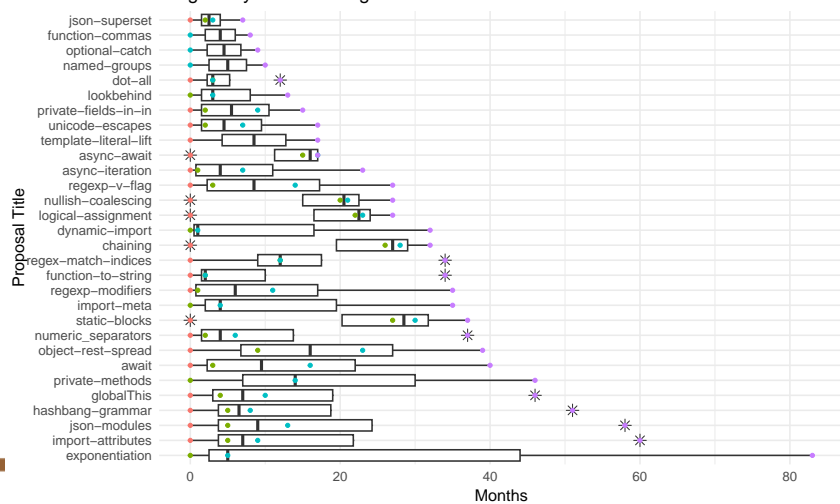
Stage 4 API Changes



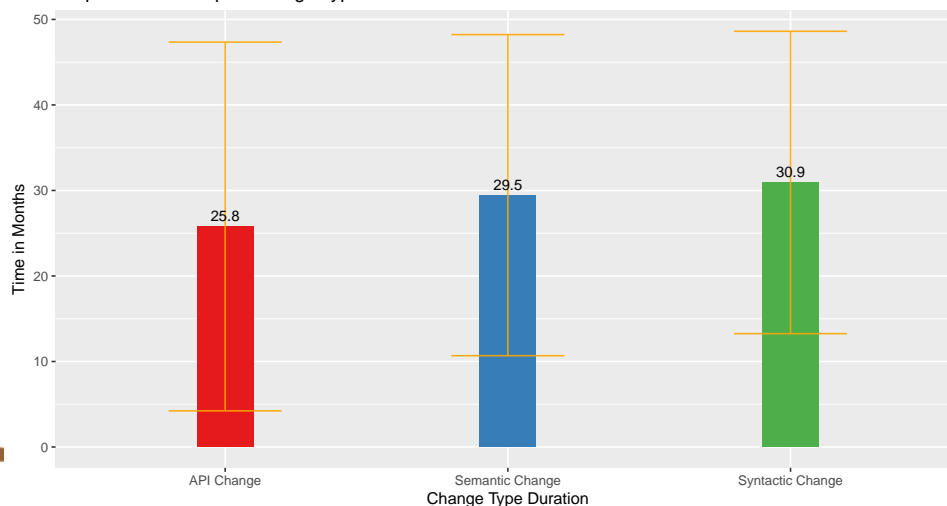
Stage 4 Semantic Changes



Stage 4 Syntactic Changes



Proposal Duration per Change Type



# Lets look at more granular classifications

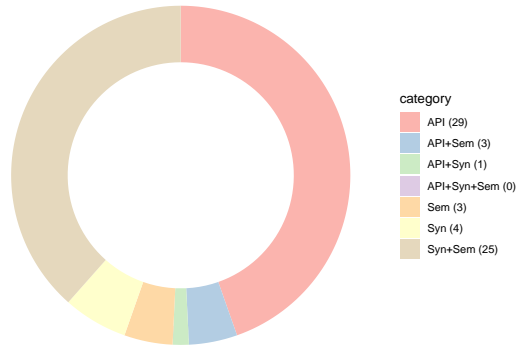


- API only
- Semantic only
- Syntactic only
- API and Semantic
- API and Syntactic
- Semantic and Syntactic
- API and Semantic and Syntactic

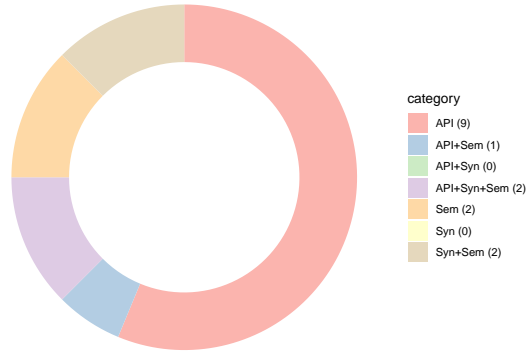
# Specific Classifications



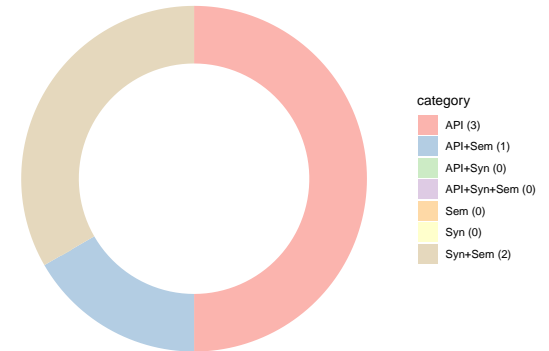
Specific Classification Distribution at Stage 4



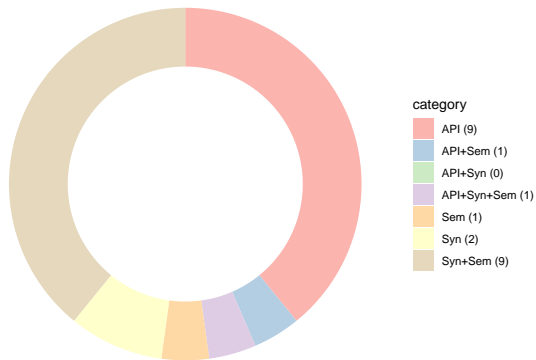
Specific Classification Distribution at Stage 3



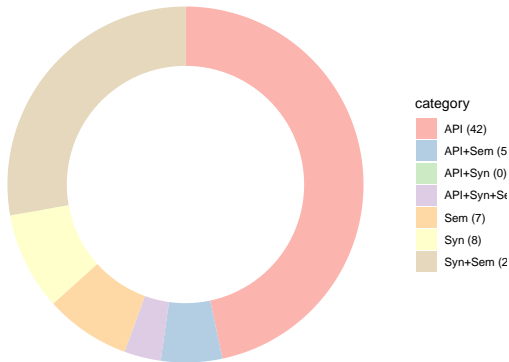
Specific Classification Distribution at Stage 2.7



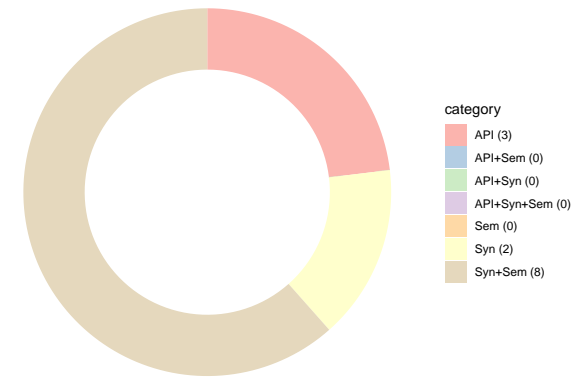
Specific Classification Distribution at Stage 2



Specific Classification Distribution at Stage 1



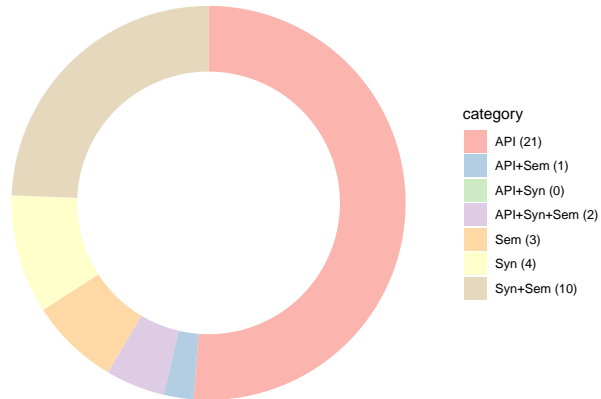
Specific Classification Distribution at Stage 0



# Continuing with Inactive



Specific Classification Distribution at Inactive

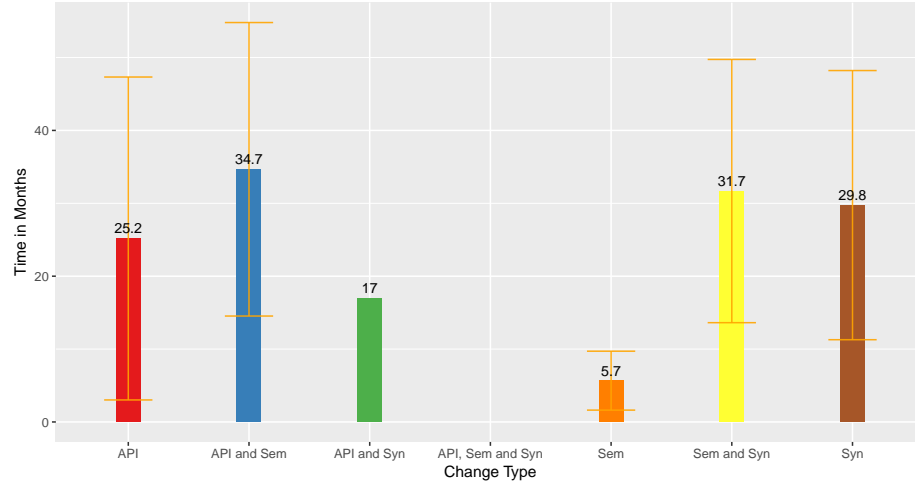




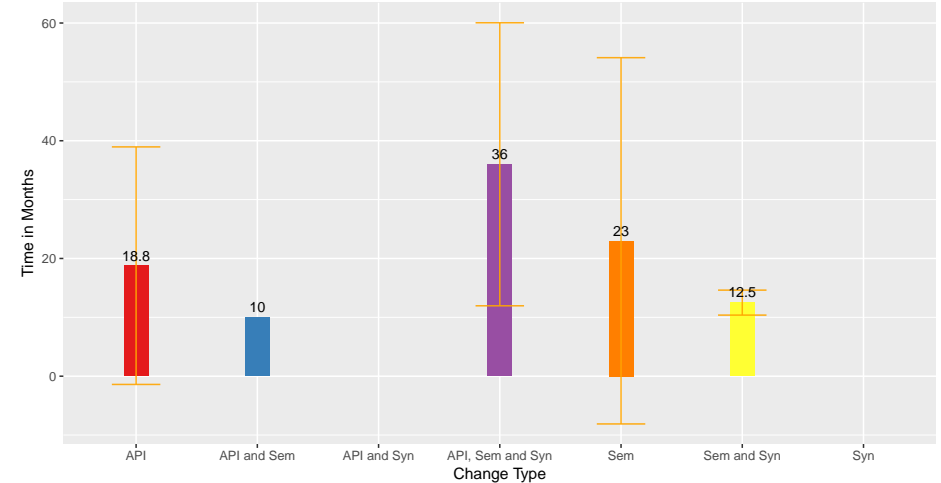
# Time From Stage 1



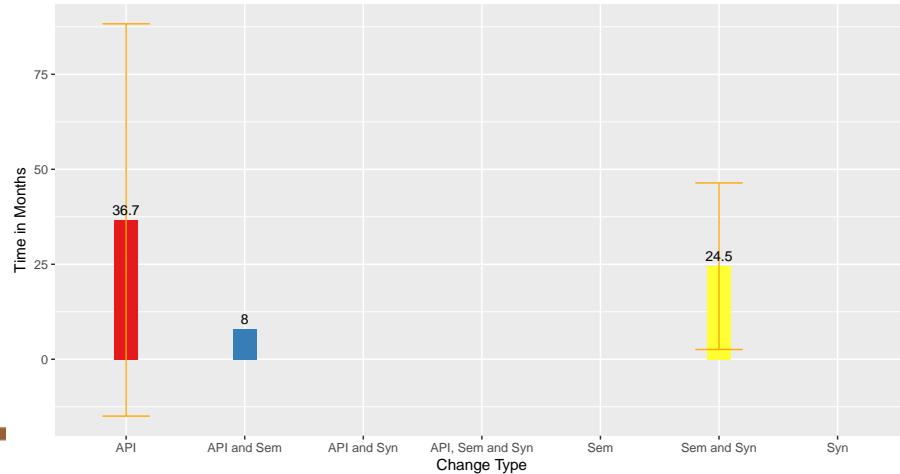
Stage 4: Time from Stage 1 to Stage 4



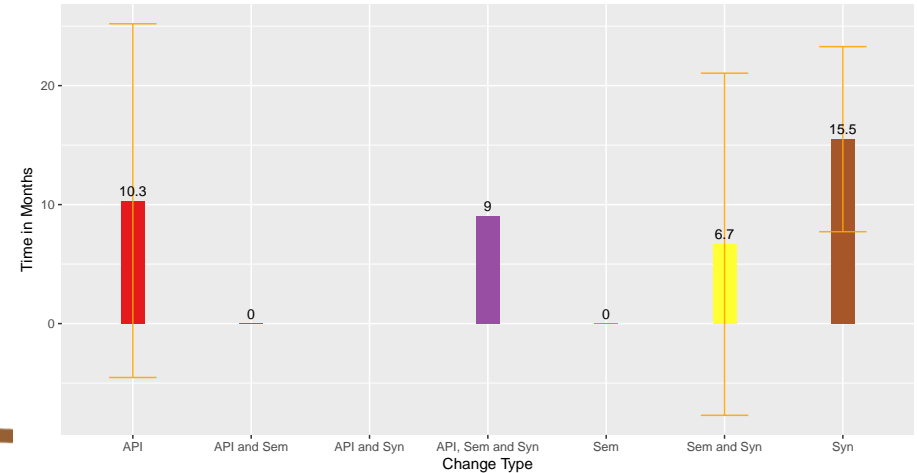
Stage 3: Time from Stage 1 to Stage 3



Stage 2.7: Time from Stage 1 to Stage 2.7



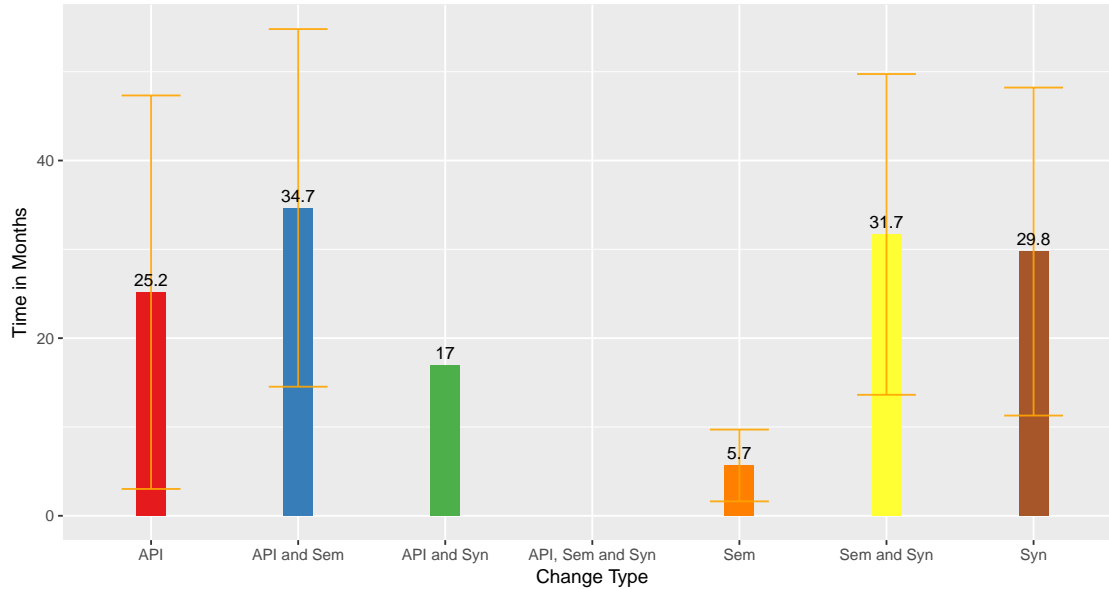
Stage 2: Time from Stage 1 to Stage 2



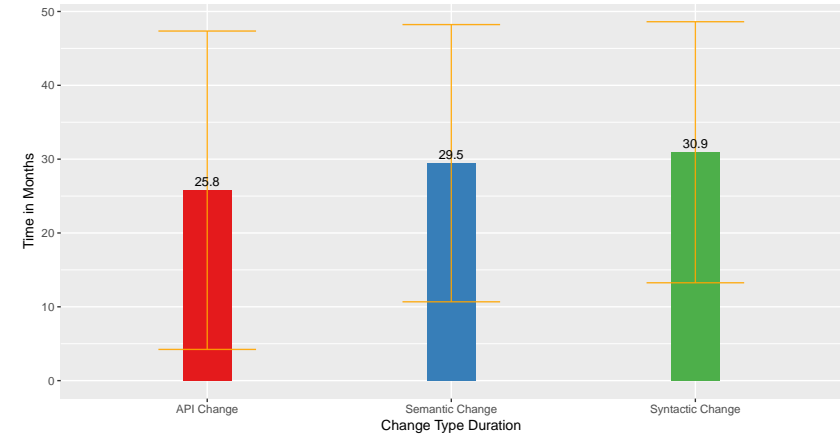
# Comparison granular vs overlapping classification



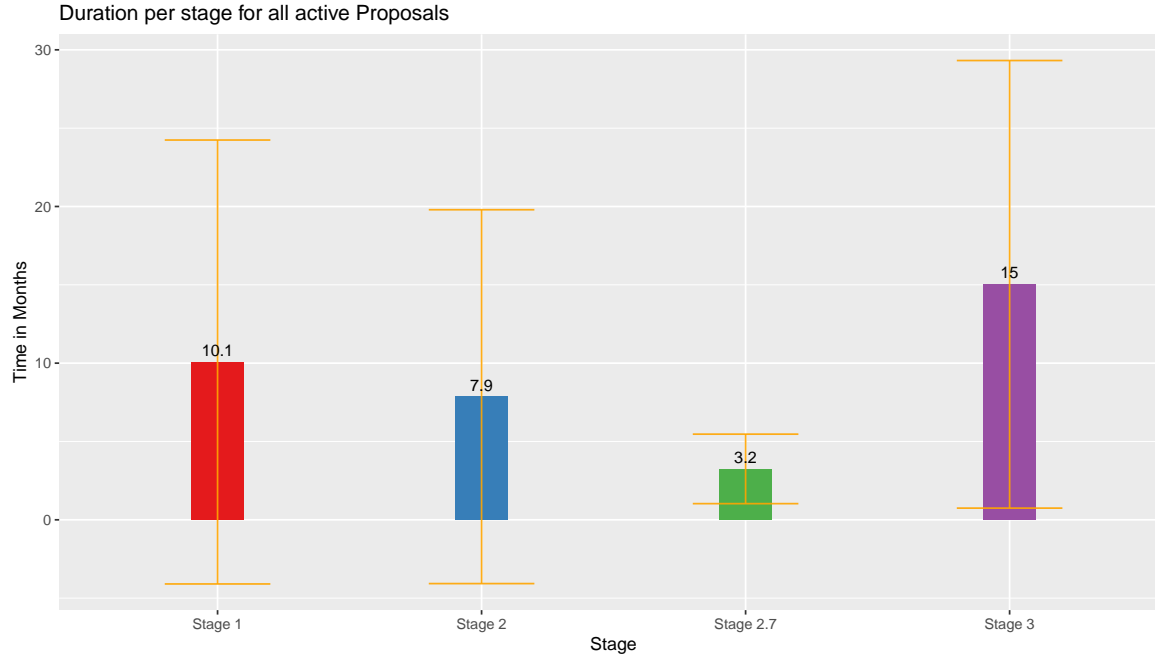
Stage 4: Time from Stage 1 to Stage 4



Proposal Duration per Change Type



# Duration per Stage



## Observations:

- Length Stage 3 → Stage 1 → Stage 2 → Stage 2.7
- Large SD
- Stage 2.7 is the smallest group

# Durations per stage for Stage 4 per classification

