

# Overview in General

This file contains a general overview of the data in the graph including node labels and relationships types.

## References

- [jqassistant](#)
- [Neo4j Python Driver](#)

## Node Labels

### Table 1a - Highest node count by label combination

Lists the 30 label combinations with the highest number of nodes. The labels with the lowest node count are listed in table 1b. The total list would sum up to the total number of labels (100%).

The whole table can be found in the CSV report `Node_label_combination_count`.

Total number of nodes: 11822

|    | nodeLabels                                       | nodesWithThatLabels | nodesWithThatLabelsPercent |
|----|--|---------------------|----------------------------|
| 0  | [Git, Commit, Log]                               | 5646                | 47.758417                  |
| 1  | [File, Git, Log]                                 | 3534                | 29.893419                  |
| 2  | [Git, Author, Log]                               | 994                 | 8.408053                   |
| 3  | [Type, TS, Primitive, ExternalType]              | 291                 | 2.461512                   |
| 4  | [Type, TS, Declared, ExternalType]               | 286                 | 2.419218                   |
| 5  | [TS, ExternalDeclaration]                        | 211                 | 1.784808                   |
| 6  | [Type, TS, Literal, ExternalType]                | 136                 | 1.150398                   |
| 7  | [Type, TS, Union, ExternalType]                  | 120                 | 1.015057                   |
| 8  | [Type, TS, ObjectMember, ExternalType]           | 98                  | 0.828963                   |
| 9  | [TS, Property]                                   | 65                  | 0.549822                   |
| 10 | [TS, Function]                                   | 47                  | 0.397564                   |
| 11 | [Type, TS, Object, ExternalType]                 | 38                  | 0.321435                   |
| 12 | [Type, TS, FunctionParameter, ExternalType]      | 38                  | 0.321435                   |
| 13 | [TS, Parameter]                                  | 33                  | 0.279141                   |
| 14 | [Type, TS, Function, ExternalType]               | 33                  | 0.279141                   |
| 15 | [TS, ExternalModule]                             | 25                  | 0.211470                   |
| 16 | [TS, Variable]                                   | 24                  | 0.203011                   |
| 17 | [TS, Literal, Value]                             | 20                  | 0.169176                   |
| 18 | [JQAssistant, Rule, Concept]                     | 19                  | 0.160717                   |
| 19 | [TS, Interface]                                  | 18                  | 0.152259                   |
| 20 | [Type, TS, Intersection, ExternalType]           | 17                  | 0.143800                   |
| 21 | [File, Directory, Local]                         | 16                  | 0.135341                   |
| 22 | [TS, TypeAlias]                                  | 14                  | 0.118423                   |
| 23 | [TS, Declared, Value]                            | 13                  | 0.109964                   |
| 24 | [Type, TS, NotIdentified, ExternalType]          | 11                  | 0.093047                   |
| 25 | [TS, EnumMember]                                 | 8                   | 0.067670                   |
| 26 | [Project, TS]                                    | 6                   | 0.050753                   |
| 27 | [File, Local]                                    | 6                   | 0.050753                   |
| 28 | [File, TS, Local, Module]                        | 6                   | 0.050753                   |
| 29 | [Type, TS, TypeParameterReference, ExternalType] | 6                   | 0.050753                   |

## Chart 1a - Highest node count by label combination

Values under 0.5% will be grouped into "others" to get a cleaner plot. The group "others" is then broken down in Chart 1b.

<Figure size 640x480 with 0 Axes>

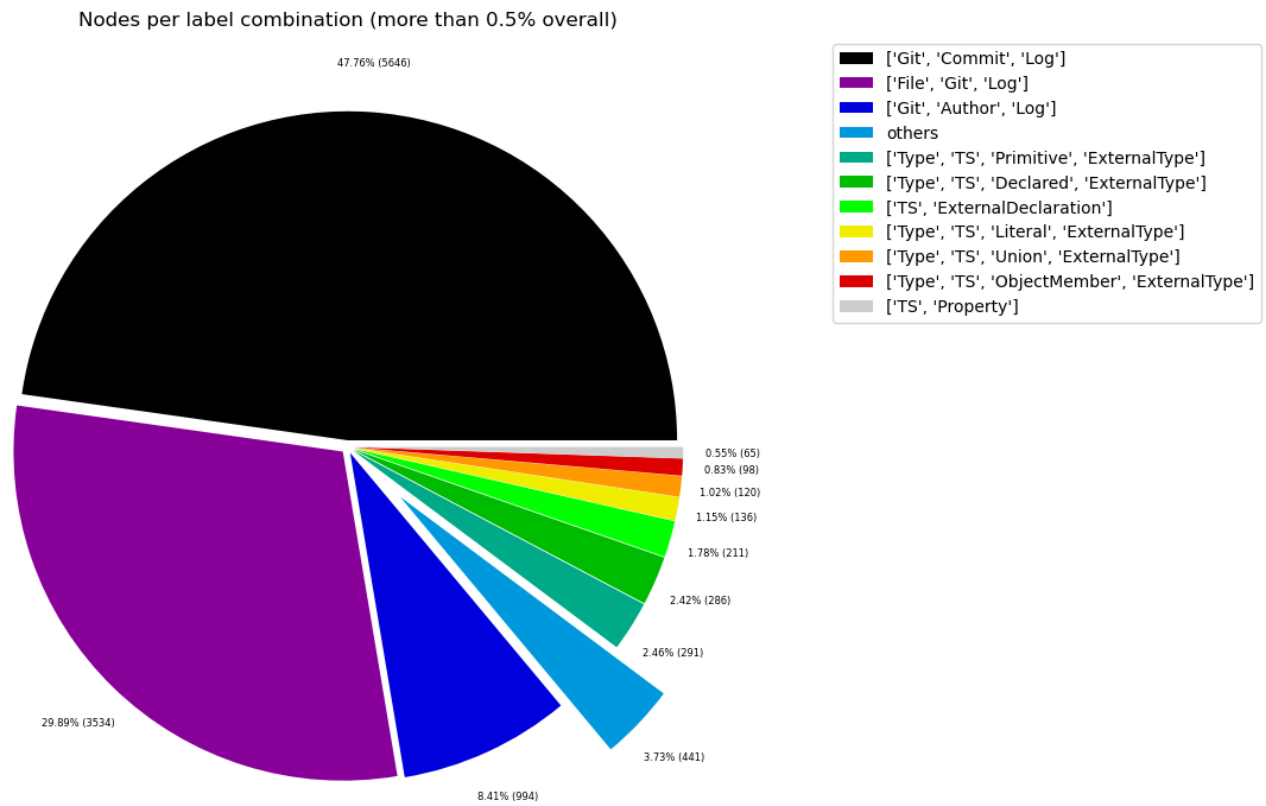


Table 1b - Lowest node count by label combination

Lists the 30 label combinations with the lowest number of nodes until they reach 0.5% of the total node count, which are shown above.

|    | nodeLabels                                       | nodesWithThatLabels | nodesWithThatLabelsPercent |
|----|--|---------------------|----------------------------|
| 0  | [Repository, Git]                                | 1                   | 0.008459                   |
| 1  | [File]   | 1                   | 0.008459                   |
| 2  | [File, TS, Scan]                                 | 1                   | 0.008459                   |
| 3  | [TS, Class]                                      | 1                   | 0.008459                   |
| 4  | [Analyze, Task, jQAssistant]                     | 1                   | 0.008459                   |
| 5  | [TS, Method]                                     | 1                   | 0.008459                   |
| 6  | [TS, ObjectMember, Value]                        | 1                   | 0.008459                   |
| 7  | [TS, Constructor]                                | 1                   | 0.008459                   |
| 8  | [TS, Enum]                                       | 2                   | 0.016918                   |
| 9  | [File, Directory]                                | 2                   | 0.016918                   |
| 10 | [TS, Object, Value]                              | 3                   | 0.025376                   |
| 11 | [Type, TS, Tuple, ExternalType]                  | 3                   | 0.025376                   |
| 12 | [TS, Function, Value]                            | 4                   | 0.033835                   |
| 13 | [TS, TypeParameter]                              | 4                   | 0.033835                   |
| 14 | [TS, Value, Complex]                             | 5                   | 0.042294                   |
| 15 | [TS, Value, Member]                              | 6                   | 0.050753                   |
| 16 | [TS, Value, Call]                                | 6                   | 0.050753                   |
| 17 | [Type, TS, TypeParameterReference, ExternalType] | 6                   | 0.050753                   |
| 18 | [File, TS, Local, Module]                        | 6                   | 0.050753                   |
| 19 | [File, Local]                                    | 6                   | 0.050753                   |
| 20 | [Project, TS]                                    | 6                   | 0.050753                   |
| 21 | [TS, EnumMember]                                 | 8                   | 0.067670                   |
| 22 | [Type, TS, NotIdentified, ExternalType]          | 11                  | 0.093047                   |
| 23 | [TS, Declared, Value]                            | 13                  | 0.109964                   |
| 24 | [TS, TypeAlias]                                  | 14                  | 0.118423                   |
| 25 | [File, Directory, Local]                         | 16                  | 0.135341                   |
| 26 | [Type, TS, Intersection, ExternalType]           | 17                  | 0.143800                   |
| 27 | [TS, Interface]                                  | 18                  | 0.152259                   |
| 28 | [jQAssistant, Rule, Concept]                     | 19                  | 0.160717                   |
| 29 | [TS, Literal, Value]                             | 20                  | 0.169176                   |

## Chart 1b - Lowest node count by label combination

Shows the lowest (less than 0.5% overall) node count label combinations. Therefore, this plot breaks down the "others" slice of the pie chart above. Values under 0.01% will be grouped into "others" to get a cleaner plot.

<Figure size 640x480 with 0 Axes>

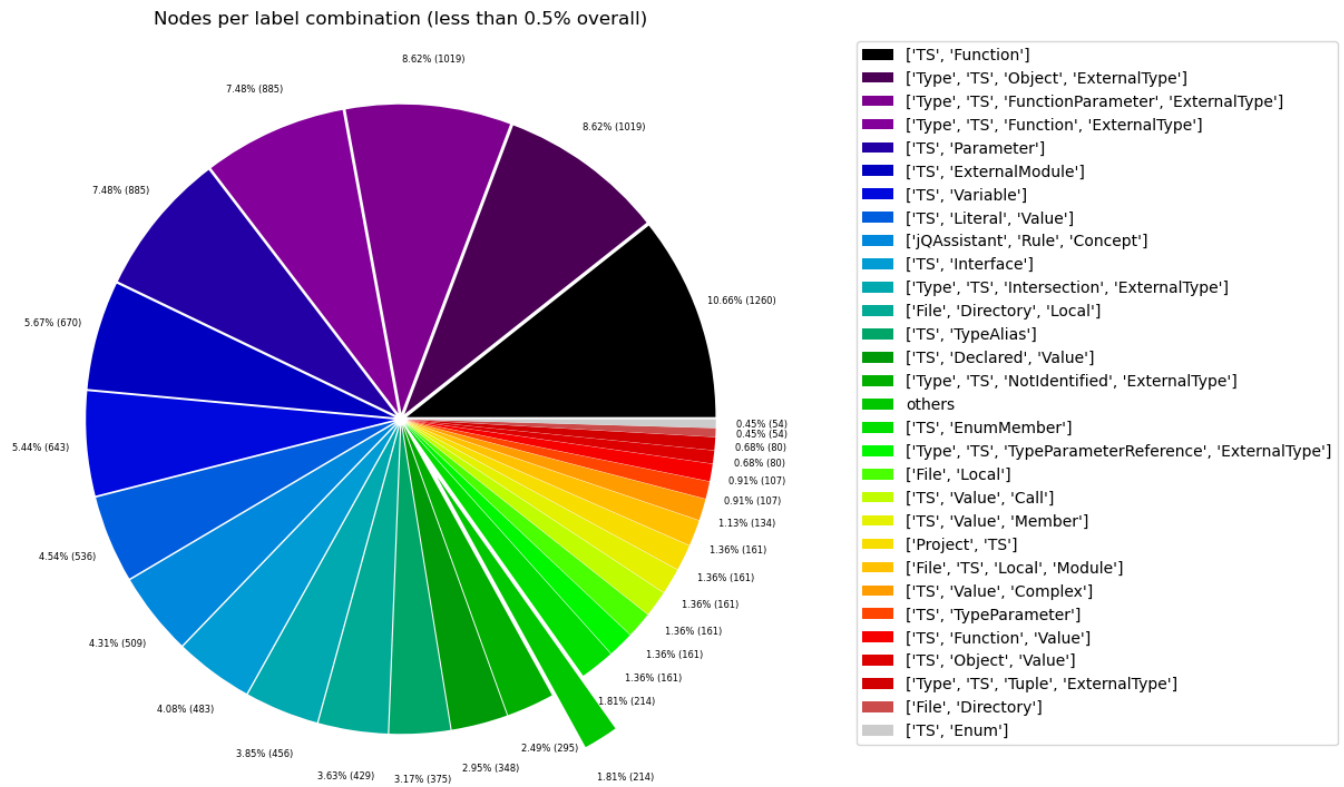


Table 1c - Highest node count by single label

Lists the 40 labels with the highest number of nodes. Doesn't sum up to the total number of nodes or 100% because one node can have multiple labels. Helps to identify commonly used labels.

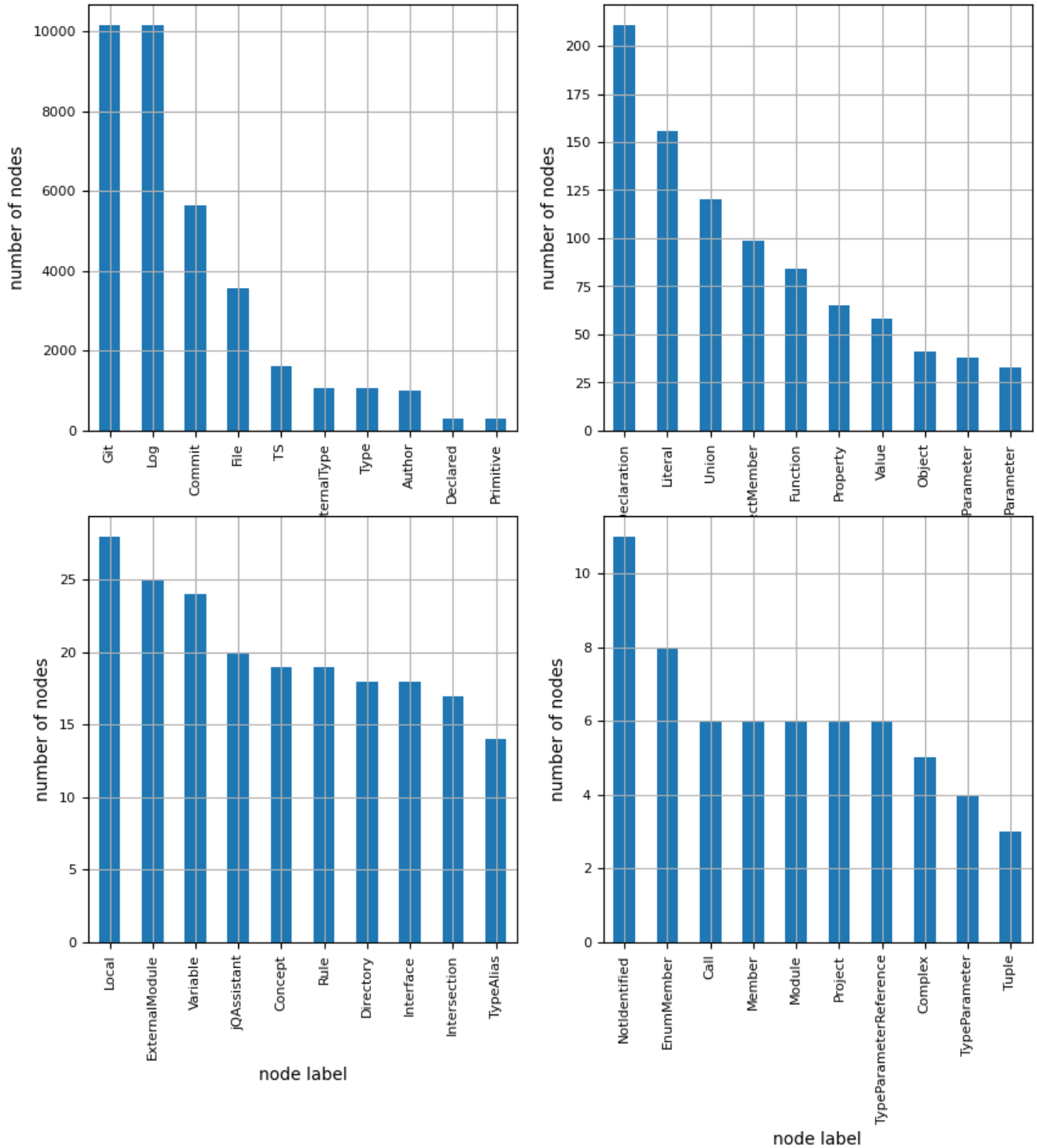
|    | nodeLabel              | nodesWithThatLabel | nodesWithThatLabelPercent |
|----|------------------------|--------------------|---------------------------|
| 0  | Git                    | 10175              | 86.068347                 |
| 1  | Log                    | 10174              | 86.059888                 |
| 2  | Commit                 | 5646               | 47.758417                 |
| 3  | File                   | 3566               | 30.164101                 |
| 4  | TS                     | 1602               | 13.551007                 |
| 5  | ExternalType           | 1077               | 9.110134                  |
| 6  | Type                   | 1077               | 9.110134                  |
| 7  | Author                 | 994                | 8.408053                  |
| 8  | Declared               | 299                | 2.529183                  |
| 9  | Primitive              | 291                | 2.461512                  |
| 10 | ExternalDeclaration    | 211                | 1.784808                  |
| 11 | Literal                | 156                | 1.319574                  |
| 12 | Union                  | 120                | 1.015057                  |
| 13 | ObjectMember           | 99                 | 0.837422                  |
| 14 | Function               | 84                 | 0.710540                  |
| 15 | Property               | 65                 | 0.549822                  |
| 16 | Value                  | 58                 | 0.490611                  |
| 17 | Object                 | 41                 | 0.346811                  |
| 18 | FunctionParameter      | 38                 | 0.321435                  |
| 19 | Parameter              | 33                 | 0.279141                  |
| 20 | Local                  | 28                 | 0.236847                  |
| 21 | ExternalModule         | 25                 | 0.211470                  |
| 22 | Variable               | 24                 | 0.203011                  |
| 23 | jqAssistant            | 20                 | 0.169176                  |
| 24 | Concept                | 19                 | 0.160717                  |
| 25 | Rule                   | 19                 | 0.160717                  |
| 26 | Directory              | 18                 | 0.152259                  |
| 27 | Interface              | 18                 | 0.152259                  |
| 28 | Intersection           | 17                 | 0.143800                  |
| 29 | TypeAlias              | 14                 | 0.118423                  |
| 30 | NotIdentified          | 11                 | 0.093047                  |
| 31 | EnumMember             | 8                  | 0.067670                  |
| 32 | Call                   | 6                  | 0.050753                  |
| 33 | Member                 | 6                  | 0.050753                  |
| 34 | Module                 | 6                  | 0.050753                  |
| 35 | Project                | 6                  | 0.050753                  |
| 36 | TypeParameterReference | 6                  | 0.050753                  |
| 37 | Complex                | 5                  | 0.042294                  |
| 38 | TypeParameter          | 4                  | 0.033835                  |
| 39 | Tuple                  | 3                  | 0.025376                  |

## Chart 1c - Highest node count by label

Shows the 40 labels with the highest number of nodes.

<Figure size 640x480 with 0 Axes>

## Node count by label



## Relationship Types

Table 2a - Highest relationship count by type

Lists the 30 relationship types with the highest number of occurrences. The whole table can be found in the CSV report `Relationship_type_count` .

Total number of relationships: 44913

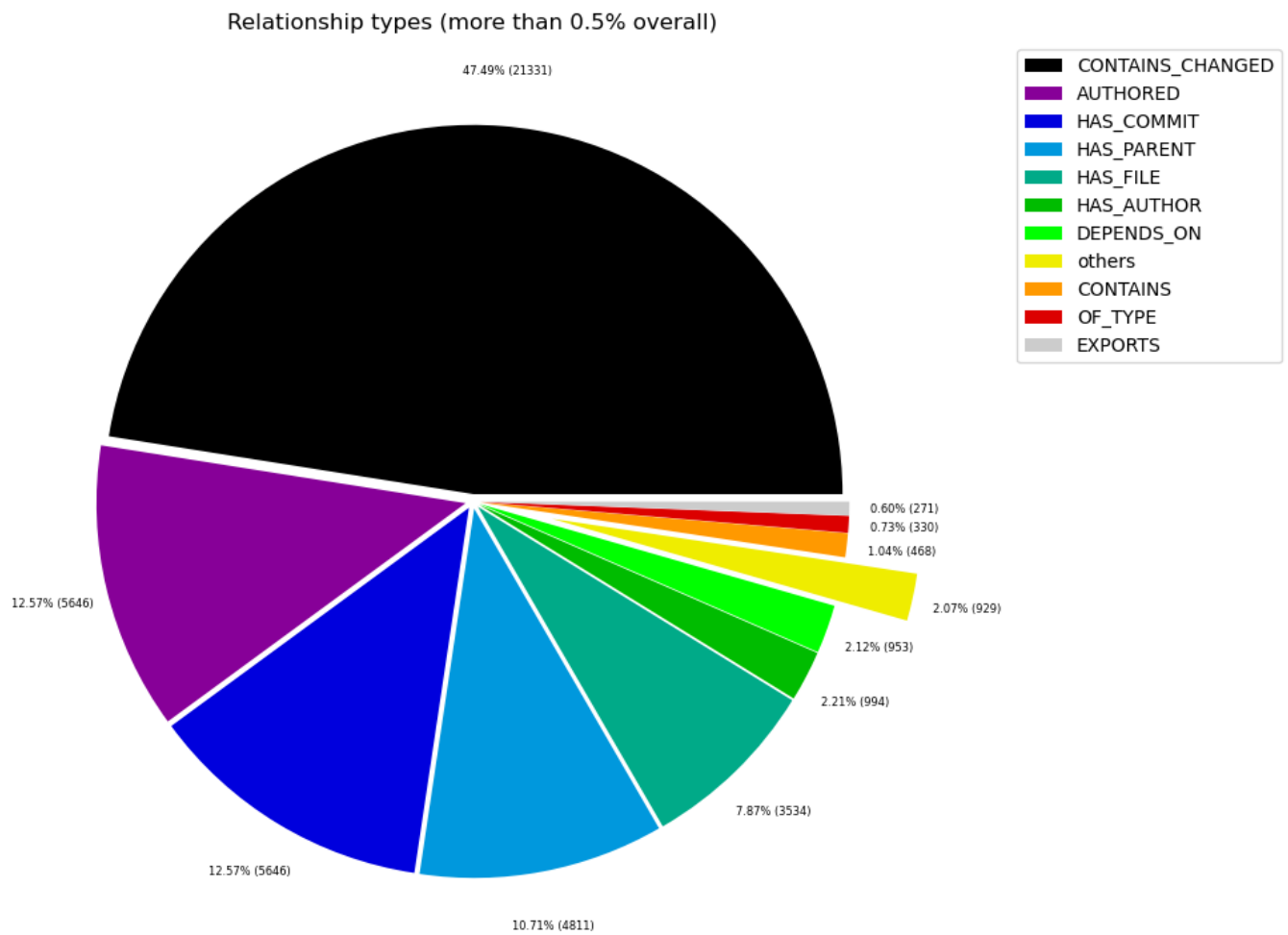
|    | relationshipType  | nodesWithThatRelationshipType | nodesWithThatRelationshipTypePercent |
|----|-------------------|-------------------------------|--------------------------------------|
| 0  | CONTAINS_CHANGED  | 21331                         | 47.494044                            |
| 1  | AUTHORED          | 5646                          | 12.570971                            |
| 2  | HAS_COMMIT        | 5646                          | 12.570971                            |
| 3  | HAS_PARENT        | 4811                          | 10.711821                            |
| 4  | HAS_FILE          | 3534                          | 7.868546                             |
| 5  | HAS_AUTHOR        | 994                           | 2.213168                             |
| 6  | DEPENDS_ON        | 953                           | 2.121880                             |
| 7  | CONTAINS          | 468                           | 1.042015                             |
| 8  | OF_TYPE           | 330                           | 0.734754                             |
| 9  | EXPORTS           | 271                           | 0.603389                             |
| 10 | REFERENCES        | 198                           | 0.440852                             |
| 11 | DECLARES          | 185                           | 0.411907                             |
| 12 | HAS_MEMBER        | 99                            | 0.220426                             |
| 13 | HAS_TYPE_ARGUMENT | 99                            | 0.220426                             |
| 14 | RETURNS           | 81                            | 0.180349                             |
| 15 | HAS_PARAMETER     | 71                            | 0.158083                             |
| 16 | INITIALIZED_WITH  | 32                            | 0.071249                             |
| 17 | REQUIRES_CONCEPT  | 28                            | 0.062343                             |
| 18 | USES              | 25                            | 0.055663                             |
| 19 | RESOLVES_TO       | 24                            | 0.053437                             |
| 20 | INCLUDES_CONCEPT  | 19                            | 0.042304                             |
| 21 | SIMILAR           | 10                            | 0.022265                             |
| 22 | EXTENDS           | 7                             | 0.015586                             |
| 23 | CALLS             | 6                             | 0.013359                             |
| 24 | CONTAINS_PROJECT  | 6                             | 0.013359                             |
| 25 | HAS_ARGUMENT      | 6                             | 0.013359                             |
| 26 | HAS_CONFIG        | 6                             | 0.013359                             |
| 27 | HAS_ROOT          | 6                             | 0.013359                             |
| 28 | MEMBER            | 6                             | 0.013359                             |
| 29 | PARENT            | 6                             | 0.013359                             |

## Chart 2a - Highest relationship count by type

Values under 0.5% will be grouped into "others" to get a cleaner plot. The group "others" is then broken down in the second chart.

<Figure size 640x480 with 0 Axes>





## Table 2b - Lowest relationship count by type

Lists the 30 relationships type with the lowest number of occurrences up to 0.5% of the total node count. This is essentially breaking down the "others" slice from the chart above.

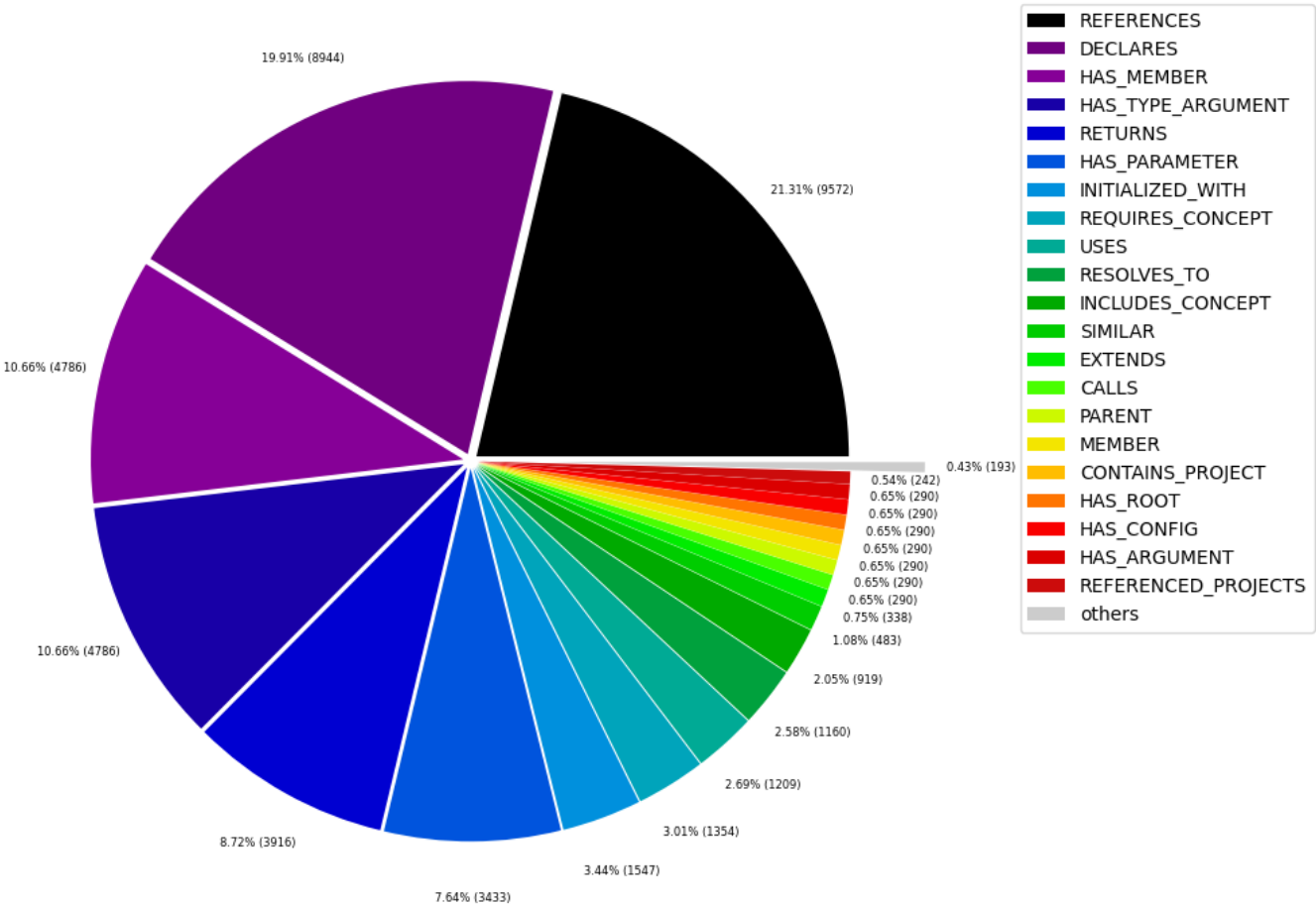
|    | relationshipType    | nodesWithThatRelationshipType | nodesWithThatRelationshipTypePercent |
|----|---------------------|-------------------------------|--------------------------------------|
| 0  | CONSTRAINED_BY      | 4                             | 0.008906                             |
| 1  | REFERENCED_PROJECTS | 5                             | 0.011133                             |
| 2  | PARENT              | 6                             | 0.013359                             |
| 3  | MEMBER              | 6                             | 0.013359                             |
| 4  | HAS_ROOT            | 6                             | 0.013359                             |
| 5  | HAS_CONFIG          | 6                             | 0.013359                             |
| 6  | HAS_ARGUMENT        | 6                             | 0.013359                             |
| 7  | CONTAINS_PROJECT    | 6                             | 0.013359                             |
| 8  | CALLS               | 6                             | 0.013359                             |
| 9  | EXTENDS             | 7                             | 0.015586                             |
| 10 | SIMILAR             | 10                            | 0.022265                             |
| 11 | INCLUDES_CONCEPT    | 19                            | 0.042304                             |
| 12 | RESOLVES_TO         | 24                            | 0.053437                             |
| 13 | USES                | 25                            | 0.055663                             |
| 14 | REQUIRES_CONCEPT    | 28                            | 0.062343                             |
| 15 | INITIALIZED_WITH    | 32                            | 0.071249                             |
| 16 | HAS_PARAMETER       | 71                            | 0.158083                             |
| 17 | RETURNS             | 81                            | 0.180349                             |
| 18 | HAS_TYPE_ARGUMENT   | 99                            | 0.220426                             |
| 19 | HAS_MEMBER          | 99                            | 0.220426                             |
| 20 | DECLARES            | 185                           | 0.411907                             |
| 21 | REFERENCES          | 198                           | 0.440852                             |

## Chart 2b - Lowest relationship count by type

Shows the lowest (less than 0.5% overall) relationship types. This plot breaks down the "others" slice of the pie chart above. Values under 0.01% will be grouped into "others" to get a cleaner plot.

<Figure size 640x480 with 0 Axes>

Relationship types (less than 0.5% overall)



## Node labels with their relationships

Table 3a - Highest relationship count by node labels and relationship type

Lists the 30 node labels and their relationship types with the highest number of occurrences.

|    | sourceLabels                                      | relationType      | targetLabels                                | numberOfRelationships | numberOfNodesWithSameLabelsAsSource | numberOfNodesWithSam |
|----|---|-------------------|---|-----------------------|-------------------------------------|----------------------|
| 0  | [Git, Commit, Log]                                | CONTAINS_CHANGED  | [File, Git, Log]                            | 21331                 | 5646                                |                      |
| 1  | [Repository, Git]                                 | HAS_COMMIT        | [Git, Commit, Log]                          | 5646                  | 1                                   |                      |
| 2  | [Git, Author, Log]                                | AUTHORED          | [Git, Commit, Log]                          | 5646                  | 994                                 |                      |
| 3  | [Git, Commit, Log]                                | HAS_PARENT        | [Git, Commit, Log]                          | 4811                  | 5646                                |                      |
| 4  | [Repository, Git]                                 | HAS_FILE          | [File, Git, Log]                            | 3534                  | 1                                   |                      |
| 5  | [Repository, Git]                                 | HAS_AUTHOR        | [Git, Author, Log]                          | 994                   | 1                                   |                      |
| 6  | [TS, Function]                                    | DEPENDS_ON        | [TS, ExternalDeclaration]                   | 280                   | 47                                  |                      |
| 7  | [TS, ExternalModule]                              | EXPORTS           | [TS, ExternalDeclaration]                   | 211                   | 25                                  |                      |
| 8  | [Type, TS, Union, ExternalType]                   | CONTAINS          | [Type, TS, Primitive, ExternalType]         | 149                   | 120                                 |                      |
| 9  | [File, TS, Local, Module, Mark4ModuleWeaklyCon... | DEPENDS_ON        | [TS, ExternalDeclaration]                   | 148                   | 1                                   |                      |
| 10 | [Type, TS, Declared, ExternalType]                | REFERENCES        | [TS, ExternalDeclaration]                   | 139                   | 286                                 |                      |
| 11 | [TS, Function]                                    | DEPENDS_ON        | [TS, ExternalModule]                        | 129                   | 47                                  |                      |
| 12 | [Type, TS, Union, ExternalType]                   | CONTAINS          | [Type, TS, Literal, ExternalType]           | 119                   | 120                                 |                      |
| 13 | [Type, TS, Object, ExternalType]                  | HAS_MEMBER        | [Type, TS, ObjectMember, ExternalType]      | 98                    | 38                                  |                      |
| 14 | [Type, TS, Union, ExternalType]                   | CONTAINS          | [Type, TS, Declared, ExternalType]          | 78                    | 120                                 |                      |
| 15 | [TS, Interface]                                   | DECLARES          | [TS, Property]                              | 61                    | 18                                  |                      |
| 16 | [TS, Property]                                    | OF_TYPE           | [Type, TS, Union, ExternalType]             | 46                    | 65                                  |                      |
| 17 | [TS, Variable]                                    | DEPENDS_ON        | [TS, ExternalDeclaration]                   | 44                    | 24                                  |                      |
| 18 | [Type, TS, Declared, ExternalType]                | HAS_TYPE_ARGUMENT | [Type, TS, Declared, ExternalType]          | 43                    | 286                                 |                      |
| 19 | [File, TS, Local, Module, Mark4ModuleWeaklyCon... | DEPENDS_ON        | [TS, ExternalDeclaration]                   | 40                    | 2                                   |                      |
| 20 | [Type, TS, Function, ExternalType]                | HAS_PARAMETER     | [Type, TS, FunctionParameter, ExternalType] | 38                    | 33                                  |                      |
| 21 | [Type, TS, ObjectMember, ExternalType]            | OF_TYPE           | [Type, TS, Union, ExternalType]             | 35                    | 98                                  |                      |
| 22 | [TS, Function]                                    | HAS_PARAMETER     | [TS, Parameter]                             | 33                    | 47                                  |                      |
| 23 | [Type, TS, ObjectMember, ExternalType]            | OF_TYPE           | [Type, TS, Primitive, ExternalType]         | 31                    | 98                                  |                      |
| 24 | [TS, Function]                                    | DEPENDS_ON        | [TS, Function]                              | 30                    | 47                                  |                      |
| 25 | [Type, TS, Declared, ExternalType]                | HAS_TYPE_ARGUMENT | [Type, TS, Primitive, ExternalType]         | 29                    | 286                                 |                      |
| 26 | [JQAssistant, Rule, Concept]                      | REQUIRES_CONCEPT  | [JQAssistant, Rule, Concept]                | 28                    | 19                                  |                      |
| 27 | [File, TS, Local, Module, Mark4ModuleWeaklyCon... | DECLARES          | [TS, Function]                              | 27                    | 1                                   |                      |
| 28 | [File, Directory, Local]                          | CONTAINS          | [File, Directory, Local]                    | 26                    | 16                                  |                      |
| 29 | [TS, Interface]                                   | DEPENDS_ON        | [TS, ExternalDeclaration]                   | 26                    | 18                                  |                      |

## Graph Density

total\_number\_of\_nodes (vertices): 11822

total\_number\_of\_relationships (edges): 44913

-> total directed graph density: 0.0003213859543697348

-> total directed graph density in percent: 0.032138595436973484