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: 11733
```

	nodeLabels	nodesWithThatLabels	nodesWithThatLabelsPercent
0	[Commit, Git, Log]	5611	47.822381
1	[File, Git, Log]	3523	30.026421
2	[Author, Git, Log]	989	8.429217
3	[Type, TS, Primitive, ExternalType]	286	2.437569
4	[Type, TS, Declared, ExternalType]	276	2.352340
5	[TS, ExternalDeclaration]	209	1.781301
6	[Type, TS, Literal, ExternalType]	136	1.159124
7	[Type, TS, Union, ExternalType]	118	1.005710
8	[Type, TS, ObjectMember, ExternalType]	95	0.809682
9	[TS, Property]	65	0.553993
10	[TS, Function]	47	0.400580
11	[Type, TS, Object, ExternalType]	36	0.306827
12	[Type, TS, FunctionParameter, ExternalType]	35	0.298304
13	[TS, Parameter]	33	0.281258
14	[Type, TS, Function, ExternalType]	31	0.264212
15	[TS, ExternalModule]	25	0.213074
16	[TS, Variable]	23	0.196028
17	[TS, Literal, Value]	20	0.170459
18	[jQAssistant, Rule, Concept]	19	0.161936
19	[TS, Interface]	18	0.153413
20	[Type, TS, Intersection, ExternalType]	17	0.144890
21	[File, Directory, Local]	15	0.127845
22	[TS, TypeAlias]	14	0.119322
23	[TS, Declared, Value]	10	0.085230
24	[Type, TS, NotIdentified, ExternalType]	10	0.085230
25	[TS, EnumMember]	8	0.068184
26	[Project, TS]	6	0.051138
27	[File, Local]	6	0.051138
28	[File, TS, Local, Module]	6	0.051138
29	[Type, TS, TypeParameterReference, ExternalType]	6	0.051138

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>
```

Nodes per label combination (more than 0.5% overall)

Legend:
- ['Commit', 'Git', 'Log']
- ['File', 'Git', 'Log']
- ['Author', 'Git', 'Log']
- others
- ['Type', 'TS', 'Primitive', 'ExternalType']
- ['Type', 'TS', 'Declared', 'ExternalType']
- ['TS', 'ExternalDeclaration']
- ['Type', 'TS', 'Literal', 'ExternalType']
- ['Type', 'TS', 'Union', 'ExternalType']
- ['Type', 'TS', 'ObjectMember', 'ExternalType']
- ['TS', 'Property']

Pie chart values:
- 47.82% (5611)
- 30.03% (3523)
- 8.43% (989)
- 3.62% (425)
- 2.44% (286)
- 2.35% (276)
- 1.78% (209)
- 1.16% (136)
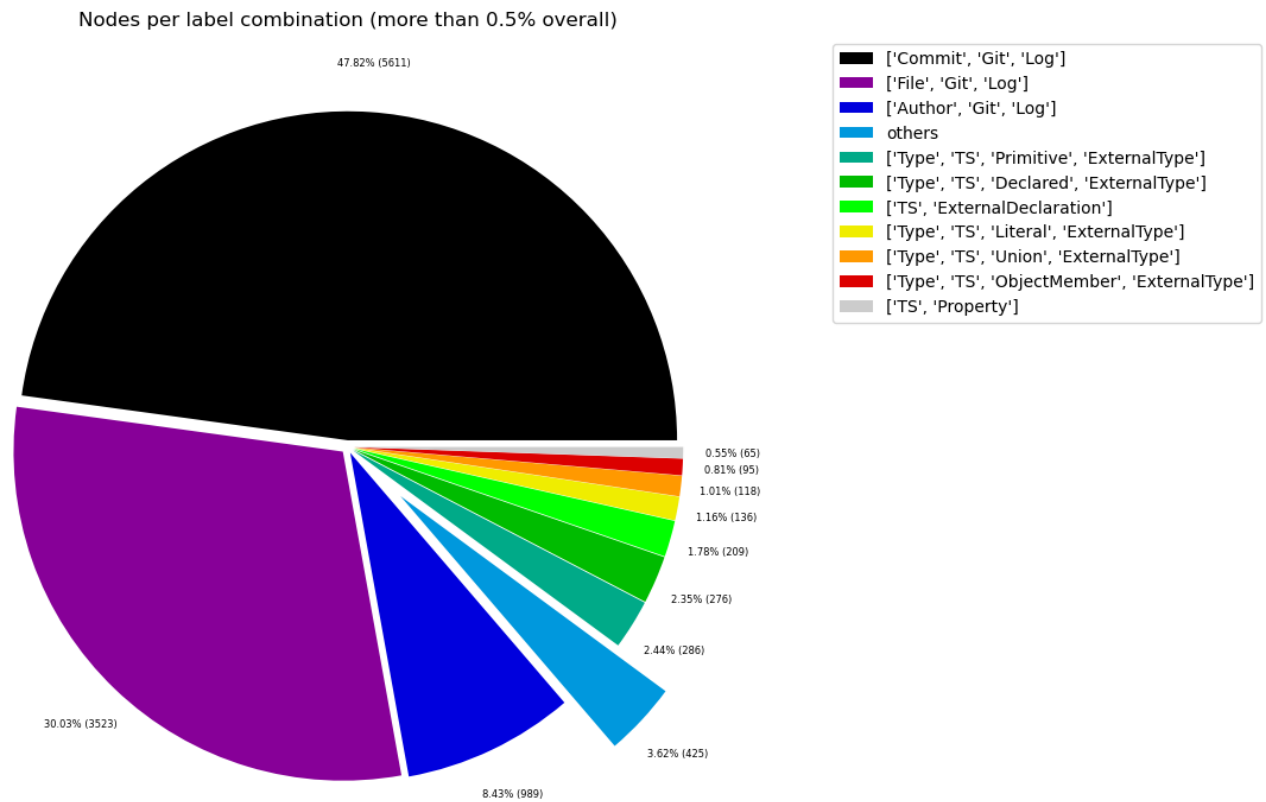- 1.01% (118)
- 0.81% (95)
- 0.55% (65)

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	[Analyze, Task, jQAssistant]	1	0.008523
1	[File]	1	0.008523
2	[File, TS, Scan]	1	0.008523
3	[TS, ObjectMember, Value]	1	0.008523
4	[TS, Constructor]	1	0.008523
5	[TS, Method]	1	0.008523
6	[TS, Class]	1	0.008523
7	[TS, Enum]	2	0.017046
8	[File, Directory]	2	0.017046
9	[TS, Object, Value]	3	0.025569
10	[Type, TS, Tuple, ExternalType]	3	0.025569
11	[TS, TypeParameter]	4	0.034092
12	[TS, Function, Value]	4	0.034092
13	[TS, Value, Complex]	5	0.042615
14	[TS, Value, Call]	5	0.042615
15	[TS, Value, Member]	5	0.042615
16	[Type, TS, TypeParameterReference, ExternalType]	6	0.051138
17	[File, TS, Local, Module]	6	0.051138
18	[File, Local]	6	0.051138
19	[Project, TS]	6	0.051138
20	[TS, EnumMember]	8	0.068184
21	[Type, TS, NotIdentified, ExternalType]	10	0.085230
22	[TS, Declared, Value]	10	0.085230
23	[TS, TypeAlias]	14	0.119322
24	[File, Directory, Local]	15	0.127845
25	[Type, TS, Intersection, ExternalType]	17	0.144890
26	[TS, Interface]	18	0.153413
27	[jQAssistant, Rule, Concept]	19	0.161936
28	[TS, Literal, Value]	20	0.170459
29	[TS, Variable]	23	0.196028

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>
```

Nodes per label combination (less than 0.5% overall)

Legend:
- ['TS', 'Function']
- ['Type', 'TS', 'Object', 'ExternalType']
- ['Type', 'TS', 'FunctionParameter', 'ExternalType']
- ['TS', 'Parameter']
- ['Type', 'TS', 'Function', 'ExternalType']
- ['TS', 'ExternalModule']
- ['TS', 'Variable']
- ['TS', 'Literal', 'Value']
- ['jQAssistant', 'Rule', 'Concept']
- ['TS', 'Interface']
- ['Type', 'TS', 'Intersection', 'ExternalType']
- ['File', 'Directory', 'Local']
- ['TS', 'TypeAlias']
- ['TS', 'Declared', 'Value']
- ['Type', 'TS', 'NotIdentified', 'ExternalType']
- ['TS', 'EnumMember']
- others
- ['Type', 'TS', 'TypeParameterReference', 'ExternalType']
- ['File', 'Local']
- ['Project', 'TS']
- ['File', 'TS', 'Local', 'Module']
- ['TS', 'Value', 'Call']
- ['TS', 'Value', 'Complex']
- ['TS', 'Value', 'Member']
- ['TS', 'TypeParameter']
- ['TS', 'Function', 'Value']
- ['TS', 'Object', 'Value']
- ['Type', 'TS', 'Tuple', 'ExternalType']
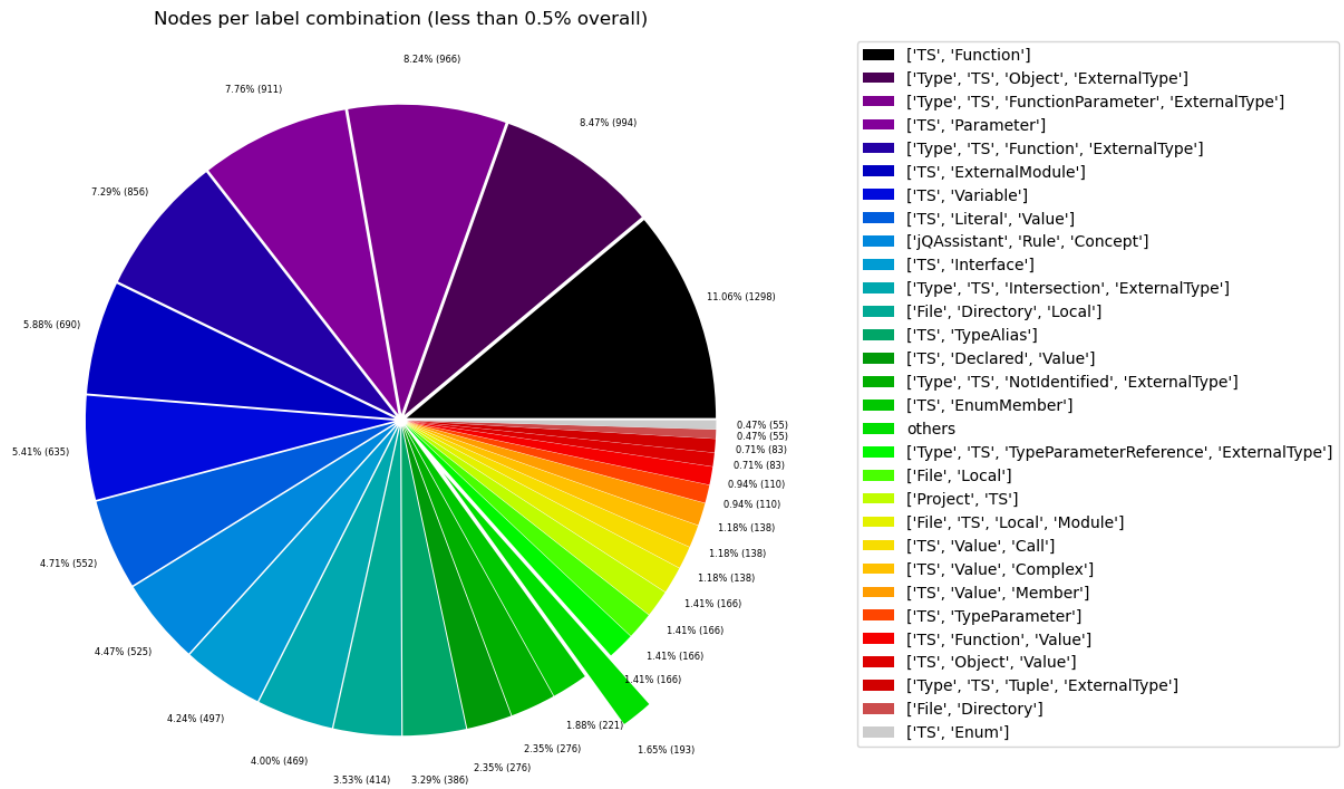- ['File', 'Directory']
- ['TS', 'Enum']

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	10123	86.278019
1	Log	10123	86.278019
2	Commit	5611	47.822381
3	File	3554	30.290633
4	TS	1566	13.346970
5	ExternalType	1049	8.940595
6	Type	1049	8.940595
7	Author	989	8.429217
8	Declared	286	2.437569
9	Primitive	286	2.437569
10	ExternalDeclaration	209	1.781301
11	Literal	156	1.329583
12	Union	118	1.005710
13	ObjectMember	96	0.818205
14	Function	82	0.698883
15	Property	65	0.553993
16	Value	53	0.451717
17	Object	39	0.332396
18	FunctionParameter	35	0.298304
19	Parameter	33	0.281258
20	Local	27	0.230120
21	ExternalModule	25	0.213074
22	Variable	23	0.196028
23	jQAssistant	20	0.170459
24	Concept	19	0.161936
25	Rule	19	0.161936
26	Interface	18	0.153413
27	Directory	17	0.144890
28	Intersection	17	0.144890
29	TypeAlias	14	0.119322
30	NotIdentified	10	0.085230
31	EnumMember	8	0.068184
32	Module	6	0.051138
33	Project	6	0.051138
34	TypeParameterReference	6	0.051138
35	Call	5	0.042615
36	Complex	5	0.042615
37	Member	5	0.042615
38	TypeParameter	4	0.034092
39	Tuple	3	0.025569

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
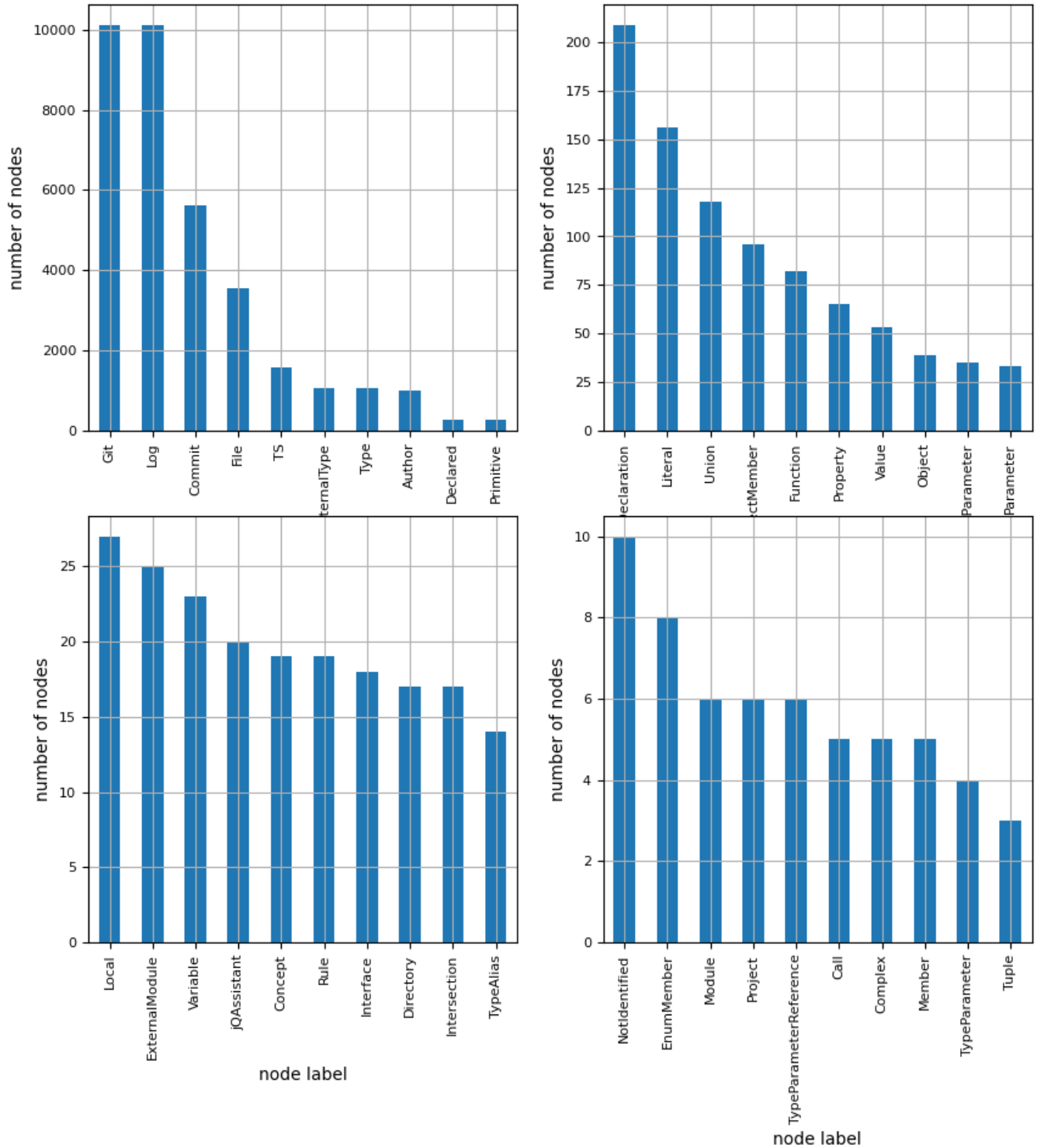
Relationship Types

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: 34548
```

	relationshipType	nodesWithThatRelationshipType	nodesWithThatRelationshipTypePercent
0	CONTAINS_CHANGED	21254	61.520204
1	AUTHORED	5611	16.241172
2	HAS_PARENT	4787	13.856084
3	DEPENDS_ON	947	2.741114
4	CONTAINS	461	1.334375
5	OF_TYPE	318	0.920458
6	EXPORTS	268	0.775732
7	REFERENCES	188	0.544170
8	DECLARES	184	0.532592
9	HAS_MEMBER	96	0.277874
10	HAS_TYPE_ARGUMENT	96	0.277874
11	RETURNS	79	0.228667
12	HAS_PARAMETER	68	0.196828
13	INITIALIZED_WITH	31	0.089730
14	REQUIRES_CONCEPT	28	0.081047
15	USES	25	0.072363
16	RESOLVES_TO	24	0.069469
17	INCLUDES_CONCEPT	19	0.054996
18	SIMILAR	10	0.028945
19	EXTENDS	7	0.020262
20	CONTAINS_PROJECT	6	0.017367
21	HAS_CONFIG	6	0.017367
22	HAS_ROOT	6	0.017367
23	CALLS	5	0.014473
24	HAS_ARGUMENT	5	0.014473
25	MEMBER	5	0.014473
26	PARENT	5	0.014473
27	REFERENCED_PROJECTS	5	0.014473
28	CONSTRAINED_BY	4	0.011578

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.
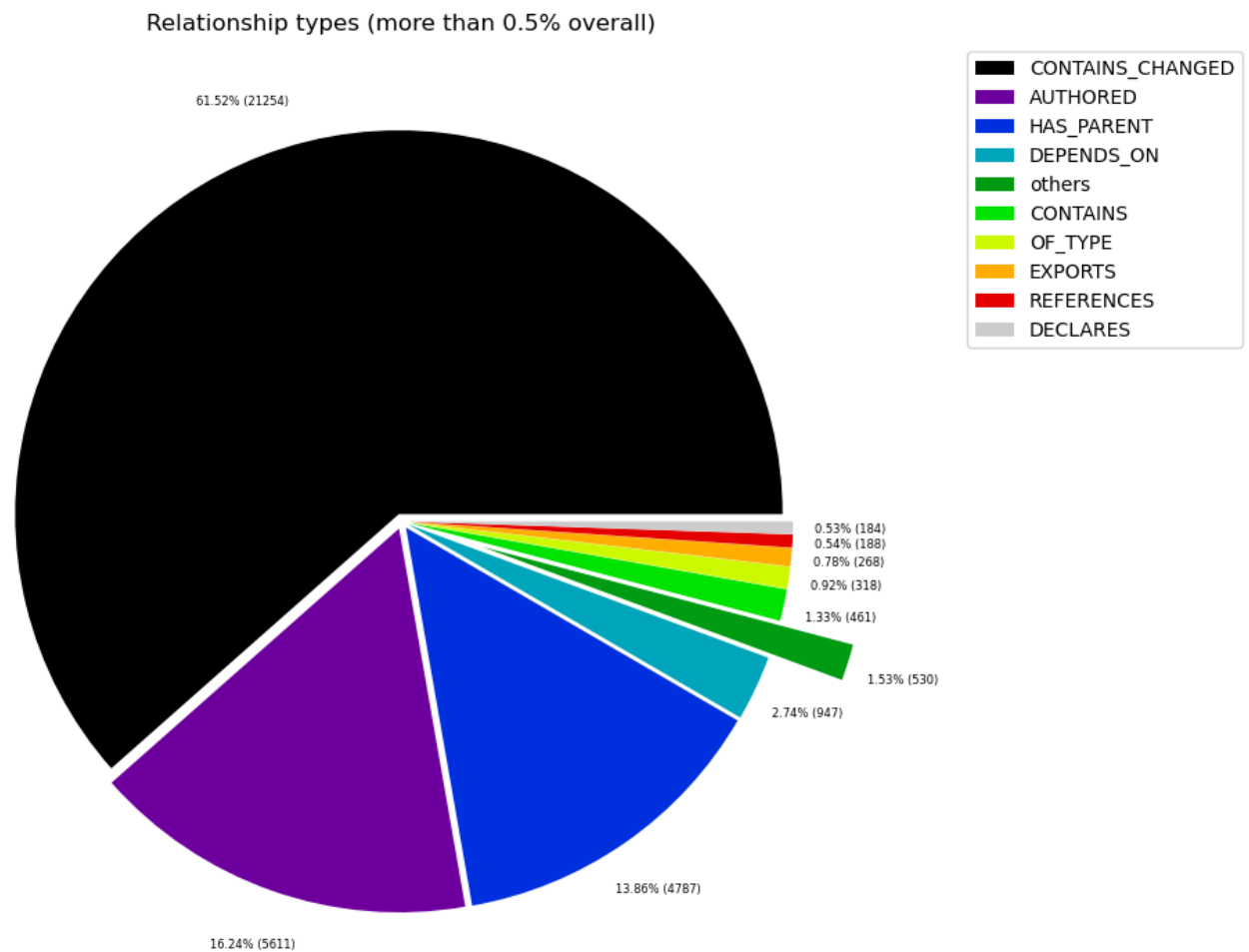
```
<Figure size 640x480 with 0 Axes>
```

Relationship types (more than 0.5% overall)

Legend:
- CONTAINS_CHANGED
- AUTHORED
- HAS_PARENT
- DEPENDS_ON
- others
- CONTAINS
- OF_TYPE
- EXPORTS
- REFERENCES
- DECLARES

Slice labels:
- 61.52% (21254)
- 16.24% (5611)
- 13.86% (4787)
- 2.74% (947)
- 1.53% (530)
- 1.33% (461)
- 0.92% (318)
- 0.78% (268)
- 0.54% (188)
- 0.53% (184)

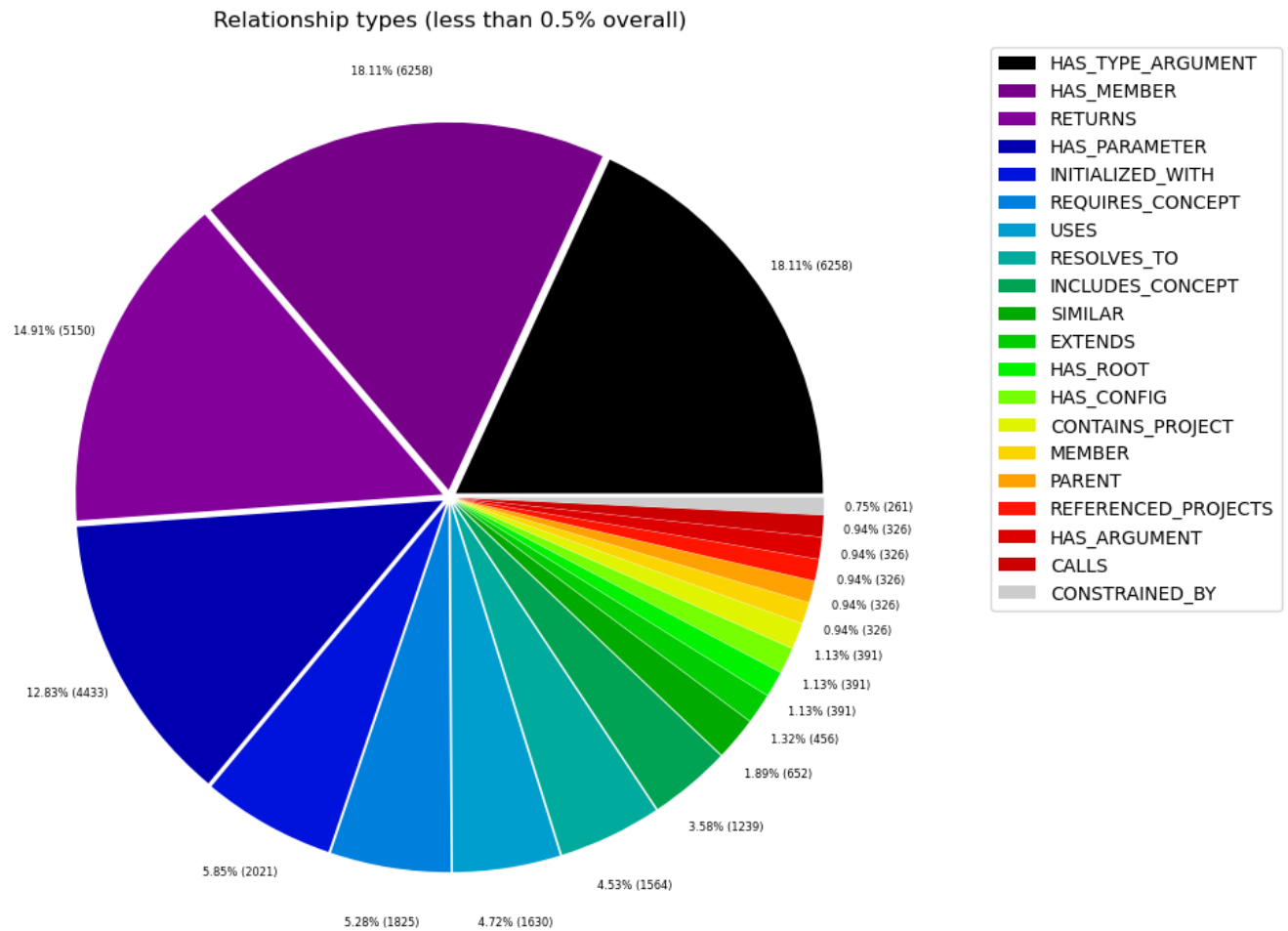## Table 2b - Lowest relationship count by type

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	0.011578
1	PARENT	5	0.014473
2	MEMBER	5	0.014473
3	HAS_ARGUMENT	5	0.014473
4	CALLS	5	0.014473
5	REFERENCED_PROJECTS	5	0.014473
6	HAS_ROOT	6	0.017367
7	HAS_CONFIG	6	0.017367
8	CONTAINS_PROJECT	6	0.017367
9	EXTENDS	7	0.020262
10	SIMILAR	10	0.028945
11	INCLUDES_CONCEPT	19	0.054996
12	RESOLVES_TO	24	0.069469
13	USES	25	0.072363
14	REQUIRES_CONCEPT	28	0.081047
15	INITIALIZED_WITH	31	0.089730
16	HAS_PARAMETER	68	0.196828
17	RETURNS	79	0.228667
18	HAS_TYPE_ARGUMENT	96	0.277874
19	HAS_MEMBER	96	0.277874

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)

Legend:
- HAS_TYPE_ARGUMENT
- HAS_MEMBER
- RETURNS
- HAS_PARAMETER
- INITIALIZED_WITH
- REQUIRES_CONCEPT
- USES
- RESOLVES_TO
- INCLUDES_CONCEPT
- SIMILAR
- EXTENDS
- HAS_ROOT
- HAS_CONFIG
- CONTAINS_PROJECT
- MEMBER
- PARENT
- REFERENCED_PROJECTS
- HAS_ARGUMENT
- CALLS
- CONSTRAINED_BY

Pie chart values:
- 18.11% (6258)
- 18.11% (6258)
- 14.91% (5150)
- 12.83% (4433)
- 5.85% (2021)
- 5.28% (1825)
- 4.72% (1630)
- 4.53% (1564)
- 3.58% (1239)
- 1.89% (652)
- 1.32% (456)
- 1.13% (391)
- 1.13% (391)
- 1.13% (391)
- 0.94% (326)
- 0.94% (326)
- 0.94% (326)
- 0.94% (326)
- 0.75% (261)

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	[Commit, Git, Log]	CONTAINS_CHANGED	[File, Git, Log]	21254	5611	
1	[Author, Git, Log]	AUTHORED	[Commit, Git, Log]	5611	989	
2	[Commit, Git, Log]	HAS_PARENT	[Commit, Git, Log]	4787	5611	
3	[TS, Function]	DEPENDS_ON	[TS, ExternalDeclaration]	280	47	
4	[TS, ExternalModule]	EXPORTS	[TS, ExternalDeclaration]	209	25	
5	[Type, TS, Union, ExternalType]	CONTAINS	[Type, TS, Primitive, ExternalType]	147	118	
6	[File, TS, Local, Module, Mark4ModuleWeaklyCon...	DEPENDS_ON	[TS, ExternalDeclaration]	146	1	
7	[Type, TS, Declared, ExternalType]	REFERENCES	[TS, ExternalDeclaration]	130	276	
8	[TS, Function]	DEPENDS_ON	[TS, ExternalModule]	129	47	
9	[Type, TS, Union, ExternalType]	CONTAINS	[Type, TS, Literal, ExternalType]	119	118	
10	[Type, TS, Object, ExternalType]	HAS_MEMBER	[Type, TS, ObjectMember, ExternalType]	95	36	
11	[Type, TS, Union, ExternalType]	CONTAINS	[Type, TS, Declared, ExternalType]	77	118	
12	[TS, Interface]	DECLARES	[TS, Property]	61	18	
13	[TS, Property]	OF_TYPE	[Type, TS, Union, ExternalType]	46	65	
14	[Type, TS, Declared, ExternalType]	HAS_TYPE_ARGUMENT	[Type, TS, Declared, ExternalType]	42	276	
15	[TS, Variable]	DEPENDS_ON	[TS, ExternalDeclaration]	42	23	
16	[File, TS, Local, Module, Mark4ModuleWeaklyCon...	DEPENDS_ON	[TS, ExternalDeclaration]	40	2	
17	[Type, TS, ObjectMember, ExternalType]	OF_TYPE	[Type, TS, Union, ExternalType]	35	95	
18	[Type, TS, Function, ExternalType]	HAS_PARAMETER	[Type, TS, FunctionParameter, ExternalType]	35	31	
19	[TS, Function]	HAS_PARAMETER	[TS, Parameter]	33	47	
20	[Type, TS, ObjectMember, ExternalType]	OF_TYPE	[Type, TS, Primitive, ExternalType]	31	95	
21	[TS, Function]	DEPENDS_ON	[TS, Function]	30	47	
22	[Type, TS, Declared, ExternalType]	HAS_TYPE_ARGUMENT	[Type, TS, Primitive, ExternalType]	28	276	
23	[jQAssistant, Rule, Concept]	REQUIRES_CONCEPT	[jQAssistant, Rule, Concept]	28	19	
24	[File, TS, Local, Module, Mark4ModuleWeaklyCon...	DECLARES	[TS, Function]	27	1	
25	[TS, Interface]	DEPENDS_ON	[TS, ExternalDeclaration]	26	18	
26	[Project, TS]	USES	[TS, ExternalModule]	25	6	
27	[Type, TS, Declared, ExternalType]	REFERENCES	[TS, Interface]	25	276	
28	[File, Directory, Local]	CONTAINS	[File, Directory, Local]	24	15	
29	[File, TS, Local, Module, Mark4ModuleWeaklyCon...	DEPENDS_ON	[TS, ExternalDeclaration]	24	1	

Graph Density

```
total_number_of_nodes (vertices): 11733
total_number_of_relationships (edges): 34548
-> total directed graph density: 0.0002509815435722354
-> total directed graph density in percent: 0.02509815435722354
```