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: 94061
```

	nodeLabels	nodesWithThatLabels	nodesWithThatLabelsPercent
0	[Git, Change]	72807	77.404025
1	[Git, Commit]	9971	10.600568
2	[File, Git]	5097	5.418824
3	[Author, Git, Person]	1183	1.257694
4	[Git, Tag]	1078	1.146065
5	[Json, Key]	668	0.710177
6	[Json, Value, Scalar]	603	0.641073
7	[Committer, Git, Person]	371	0.394425
8	[NPM, Dependency]	330	0.350836
9	[Type, TS, Primitive, ExternalType]	285	0.302995
10	[Type, TS, Declared, ExternalType]	272	0.289174
11	[TS, ExternalDeclaration]	215	0.228575
12	[Type, TS, Literal, ExternalType]	136	0.144587
13	[Json, Value, Object]	133	0.141398
14	[Type, TS, Union, ExternalType]	117	0.124387
15	[Type, TS, ObjectMember, ExternalType]	98	0.104188
16	[NPM, Script]	91	0.096746
17	[TS, Property]	65	0.069104
18	[TS, Function]	47	0.049968
19	[Type, Object, TS, ExternalType]	38	0.040399
20	[Type, TS, FunctionParameter, ExternalType]	37	0.039336
21	[File, Directory]	34	0.036147
22	[TS, Parameter]	33	0.035084
23	[Type, TS, Function, ExternalType]	32	0.034020
24	[Package, File, Json, NPM]	29	0.030831
25	[TS, ExternalModule]	25	0.026578
26	[Git, Branch]	25	0.026578
27	[TS, Variable]	24	0.025515
28	[Value, TS, Literal]	20	0.021263
29	[jQAssistant, Rule, Concept]	19	0.020200

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:
- ['Git', 'Change']
- ['Git', 'Commit']
- ['File', 'Git']
- others
- ['Author', 'Git', 'Person']
- ['Git', 'Tag']
- ['Json', 'Key']
- ['Json', 'Value', 'Scalar']

77.40% (72807)
0.64% (603)
0.71% (668)
1.15% (1078)
1.26% (1183)
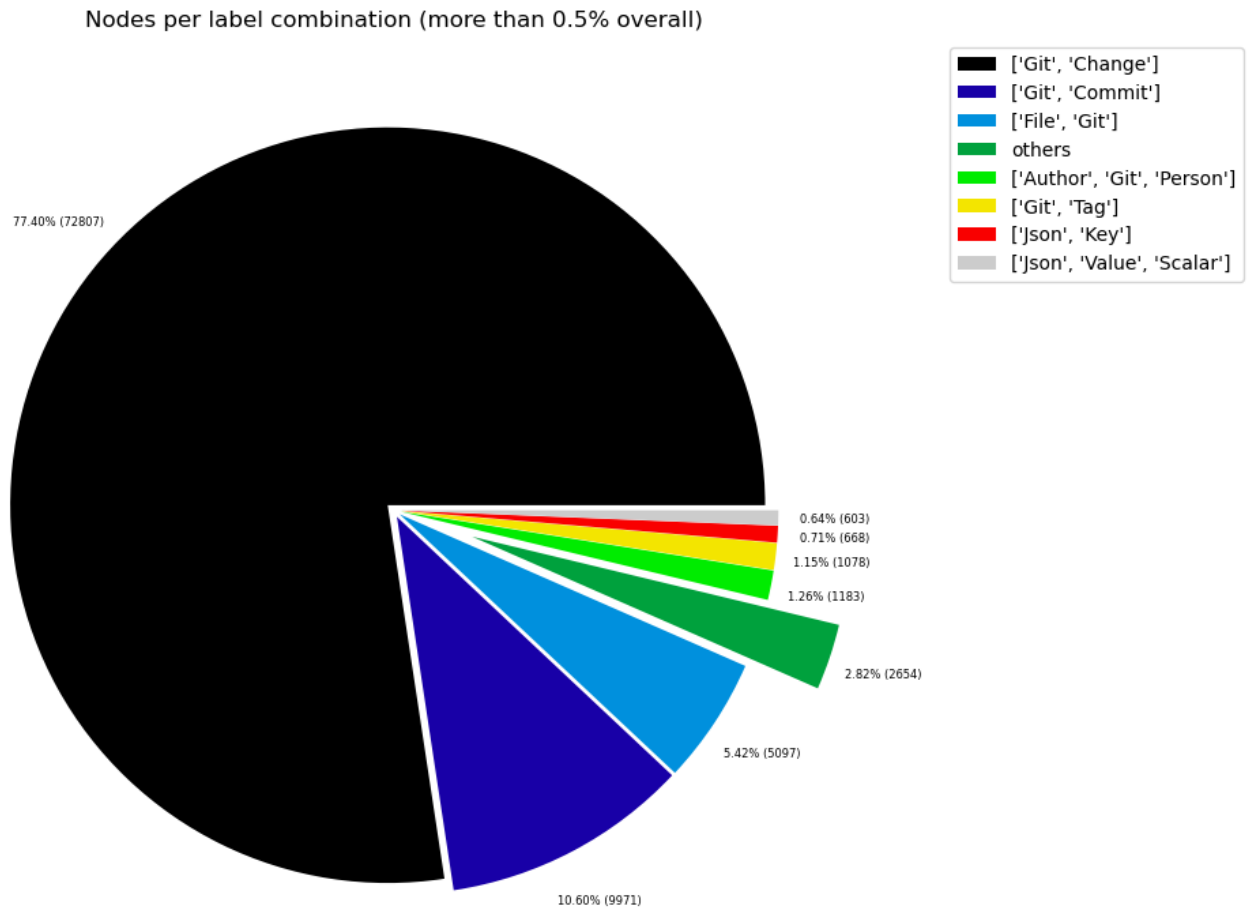2.82% (2654)
5.42% (5097)
10.60% (9971)

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	0.001063
1	[File, TS, Scan]	1	0.001063
2	[TS, Method]	1	0.001063
3	[Value, TS, ObjectMember]	1	0.001063
4	[TS, Constructor]	1	0.001063
5	[TS, Class]	1	0.001063
6	[TS, Enum]	2	0.002126
7	[Value, Object, TS]	3	0.003189
8	[Type, TS, Tuple, ExternalType]	3	0.003189
9	[Value, TS, Function]	4	0.004253
10	[TS, TypeParameter]	4	0.004253
11	[Value, TS, Complex]	5	0.005316
12	[NPM, Engine]	6	0.006379
13	[Project, TS]	6	0.006379
14	[File, Local]	6	0.006379
15	[Value, TS, Call]	6	0.006379
16	[Value, TS, Member]	6	0.006379
17	[File, TS, Local, Module]	6	0.006379
18	[Type, TS, TypeParameterReference, ExternalType]	6	0.006379
19	[TS, EnumMember]	8	0.008505
20	[Type, TS, NotIdentified, ExternalType]	11	0.011695
21	[Json, Value, Array]	12	0.012758
22	[Value, TS, Declared]	13	0.013821
23	[TS, TypeAlias]	14	0.014884
24	[File, Directory, Local]	16	0.017010
25	[Type, TS, Intersection, ExternalType]	17	0.018073
26	[TS, Interface]	18	0.019137
27	[jQAssistant, Rule, Concept]	19	0.020200
28	[Value, TS, Literal]	20	0.021263
29	[TS, Variable]	24	0.025515

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:
- ['Committer', 'Git', 'Person']
- ['NPM', 'Dependency']
- ['Type', 'TS', 'Primitive', 'ExternalType']
- ['Type', 'TS', 'Declared', 'ExternalType']
- ['TS', 'ExternalDeclaration']
- ['Type', 'TS', 'Literal', 'ExternalType']
- ['Json', 'Value', 'Object']
- ['Type', 'TS', 'Union', 'ExternalType']
- ['Type', 'TS', 'ObjectMember', 'ExternalType']
- ['NPM', 'Script']
- others
- ['TS', 'Property']
- ['TS', 'Function']
- ['Type', 'Object', 'TS', 'ExternalType']
- ['Type', 'TS', 'FunctionParameter', 'ExternalType']
- ['File', 'Directory']
- ['TS', 'Parameter']
- ['Type', 'TS', 'Function', 'ExternalType']
- ['Package', 'File', 'Json', 'NPM']
- ['Git', 'Branch']
- ['TS', 'ExternalModule']
- ['TS', 'Variable']
- ['Value', 'TS', 'Literal']
- ['jQAssistant', 'Rule', 'Concept']
- ['TS', 'Interface']
- ['Type', 'TS', 'Intersection', 'ExternalType']
- ['File', 'Directory', 'Local']
- ['TS', 'TypeAlias']
- ['Value', 'TS', 'Declared']
- ['Json', 'Value', 'Array']
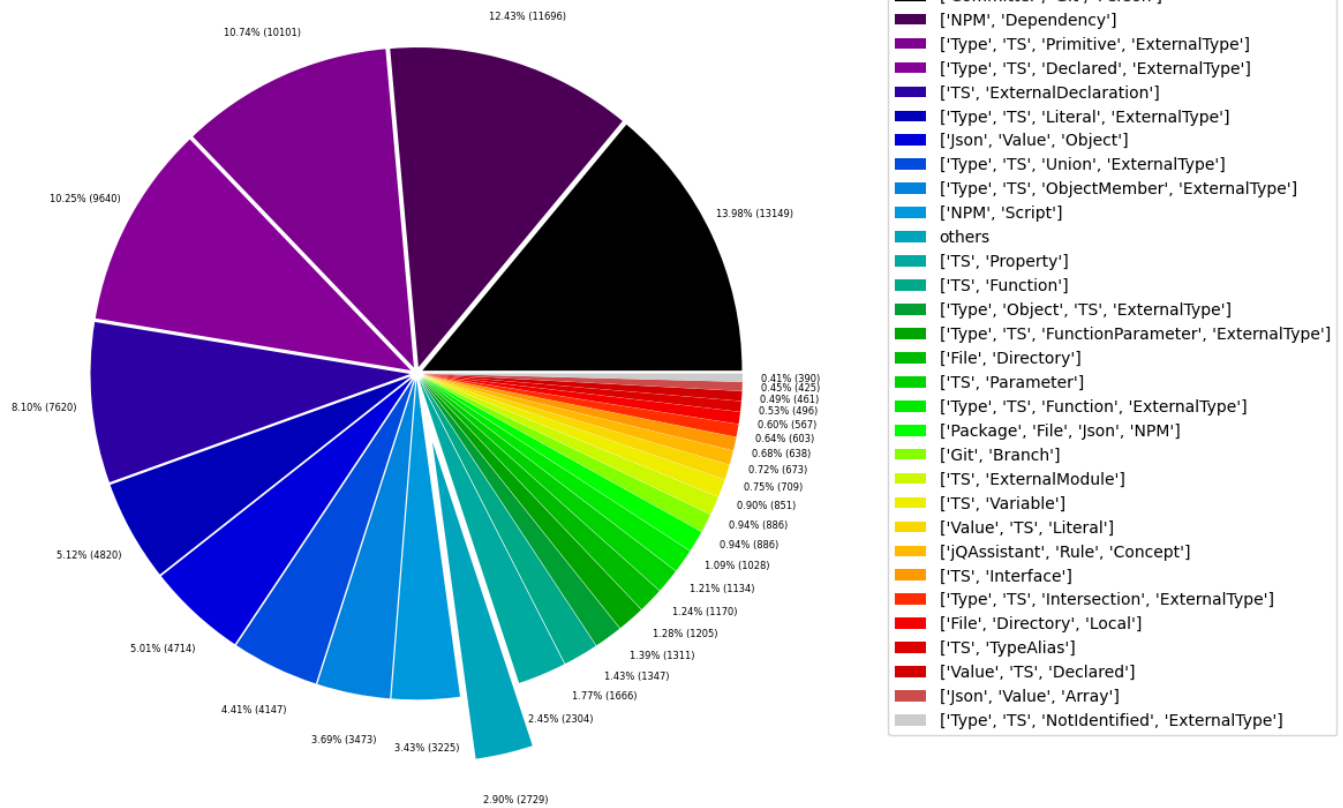- ['Type', 'TS', 'NotIdentified', 'ExternalType']

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.
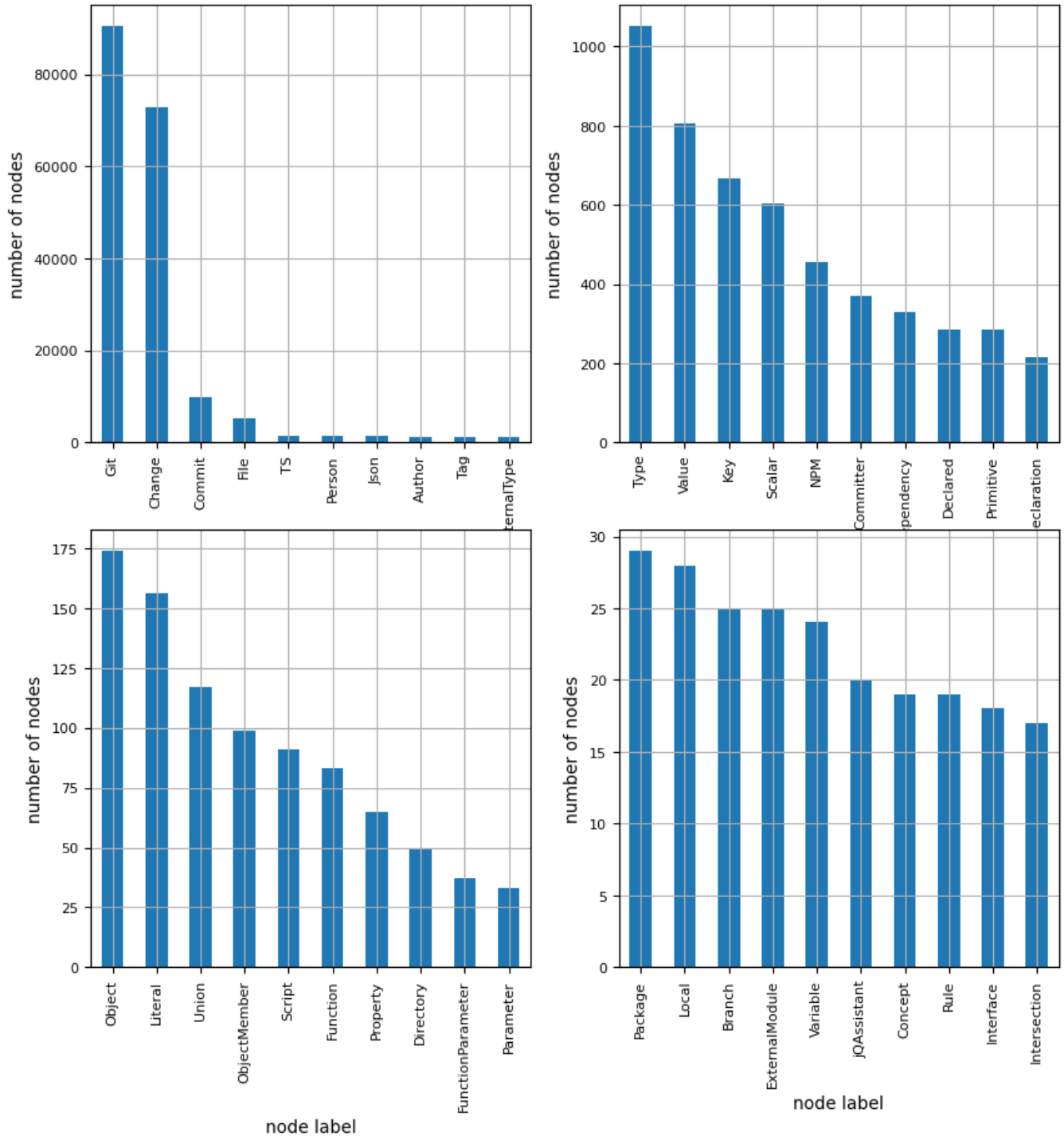
	nodeLabel	nodesWithThatLabel	nodesWithThatLabelPercent
0	Git	90532	96.248179
1	Change	72807	77.404025
2	Commit	9971	10.600568
3	File	5189	5.516633
4	TS	1581	1.680824
5	Person	1554	1.652119
6	Json	1445	1.536237
7	Author	1183	1.257694
8	Tag	1078	1.146065
9	ExternalType	1052	1.118423
10	Type	1052	1.118423
11	Value	806	0.856891
12	Key	668	0.710177
13	Scalar	603	0.641073
14	NPM	456	0.484792
15	Committer	371	0.394425
16	Dependency	330	0.350836
17	Declared	285	0.302995
18	Primitive	285	0.302995
19	ExternalDeclaration	215	0.228575
20	Object	174	0.184986
21	Literal	156	0.165850
22	Union	117	0.124387
23	ObjectMember	99	0.105251
24	Script	91	0.096746
25	Function	83	0.088241
26	Property	65	0.069104
27	Directory	50	0.053157
28	FunctionParameter	37	0.039336
29	Parameter	33	0.035084
30	Package	29	0.030831
31	Local	28	0.029768
32	Branch	25	0.026578
33	ExternalModule	25	0.026578
34	Variable	24	0.025515
35	jQAssistant	20	0.021263
36	Concept	19	0.020200
37	Rule	19	0.020200
38	Interface	18	0.019137
39	Intersection	17	0.018073

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: 262509
```

	relationshipType	nodesWithThatRelationshipType	nodesWithThatRelationshipTypePercent
0	CONTAINS_CHANGE	72807	27.735049
1	MODIFIES	72807	27.735049
2	UPDATES	48805	18.591744
3	COMMITTED	19942	7.596692
4	CREATES	16784	6.393686
5	HAS_PARENT	10981	4.183095
6	DELETES	9959	3.793775
7	RENAMES	2741	1.044155
8	HAS_NEW_NAME	1560	0.594265
9	ON_COMMIT	1078	0.410653
10	DEPENDS_ON	962	0.366464
11	HAS_KEY	668	0.254467
12	HAS_VALUE	668	0.254467
13	CONTAINS	589	0.224373
14	OF_TYPE	329	0.125329
15	EXPORTS	275	0.104758
16	REFERENCES	196	0.074664
17	DECLARES	185	0.070474
18	DECLARES_DEV_DEPENDENCY	169	0.064379
19	DECLARES_DEPENDENCY	161	0.061331
20	HAS_MEMBER	99	0.037713
21	HAS_TYPE_ARGUMENT	92	0.035046
22	DECLARES_SCRIPT	91	0.034665
23	RESOLVES_TO	80	0.030475
24	RETURNS	80	0.030475
25	HAS_PARAMETER	70	0.026666
26	CONTAINS_VALUE	51	0.019428
27	COPIES	43	0.016380
28	INITIALIZED_WITH	32	0.012190
29	COPY_OF	28	0.010666

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_CHANGE (black)
- MODIFIES (purple)
- UPDATES (blue)
- COMMITTED (teal)
- CREATES (dark green)
- HAS_PARENT (green)
- DELETES (yellow-green)
- others (orange)
- RENAMES (red)
- HAS_NEW_NAME (gray)

27.74% (72807)
27.74% (72807)
18.59% (48805)
7.60% (19942)
6.39% (16784)
4.18% (10981)
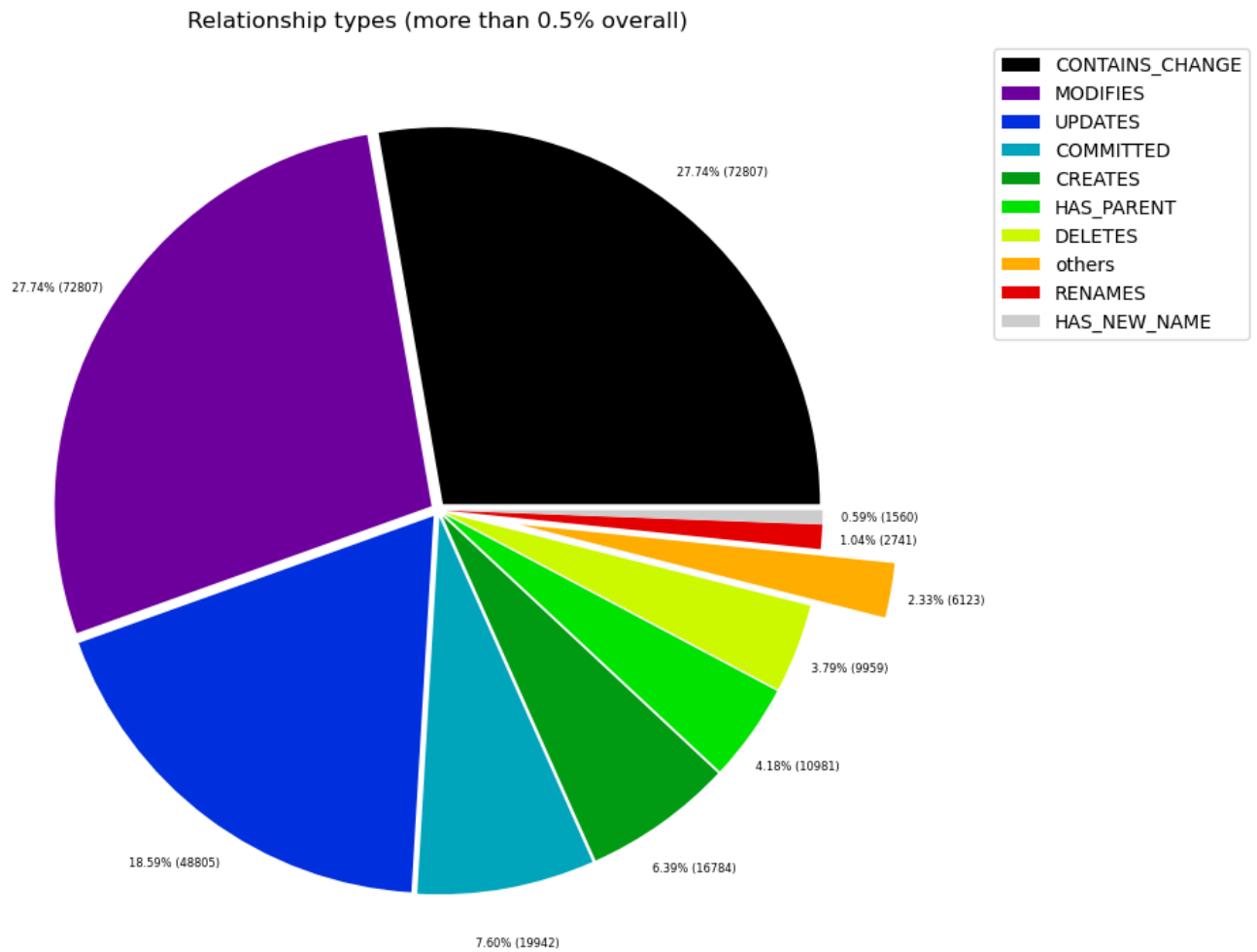3.79% (9959)
2.33% (6123)
1.04% (2741)
0.59% (1560)

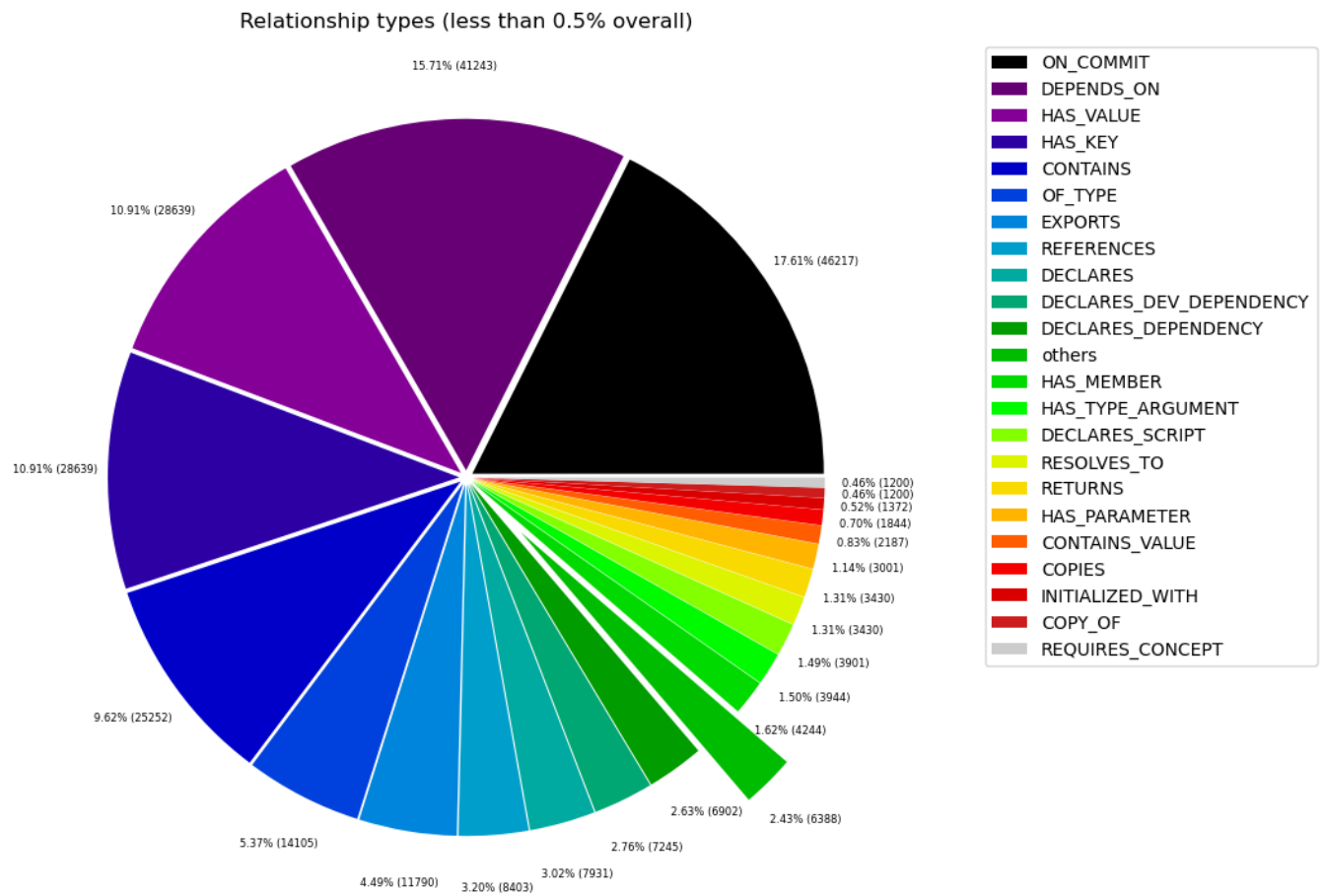## Table 2b - Lowest relationship count by type

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	0.001524
1	REFERENCED_PROJECTS	5	0.001905
2	MEMBER	6	0.002286
3	HAS_ROOT	6	0.002286
4	HAS_NPM_PACKAGE	6	0.002286
5	HAS_CONFIG	6	0.002286
6	HAS_ARGUMENT	6	0.002286
7	DECLARES_ENGINE	6	0.002286
8	CONTAINS_PROJECT	6	0.002286
9	CALLS	6	0.002286
10	PARENT	6	0.002286
11	EXTENDS	7	0.002667
12	SIMILAR	10	0.003809
13	INCLUDES_CONCEPT	19	0.007238
14	USES	25	0.009523
15	HAS_HEAD	25	0.009523
16	REQUIRES_CONCEPT	28	0.010666
17	COPY_OF	28	0.010666
18	INITIALIZED_WITH	32	0.012190
19	COPIES	43	0.016380
20	CONTAINS_VALUE	51	0.019428
21	HAS_PARAMETER	70	0.026666
22	RETURNS	80	0.030475
23	RESOLVES_TO	80	0.030475
24	DECLARES_SCRIPT	91	0.034665
25	HAS_TYPE_ARGUMENT	92	0.035046
26	HAS_MEMBER	99	0.037713
27	DECLARES_DEPENDENCY	161	0.061331
28	DECLARES_DEV_DEPENDENCY	169	0.064379
29	DECLARES	185	0.070474

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:
- ON_COMMIT
- DEPENDS_ON
- HAS_VALUE
- HAS_KEY
- CONTAINS
- OF_TYPE
- EXPORTS
- REFERENCES
- DECLARES
- DECLARES_DEV_DEPENDENCY
- DECLARES_DEPENDENCY
- others
- HAS_MEMBER
- HAS_TYPE_ARGUMENT
- DECLARES_SCRIPT
- RESOLVES_TO
- RETURNS
- HAS_PARAMETER
- CONTAINS_VALUE
- COPIES
- INITIALIZED_WITH
- COPY_OF
- REQUIRES_CONCEPT

Pie chart values:
- 17.61% (46217)
- 15.71% (41243)
- 10.91% (28639)
- 10.91% (28639)
- 9.62% (25252)
- 5.37% (14105)
- 4.49% (11790)
- 3.20% (8403)
- 3.02% (7931)
- 2.76% (7245)
- 2.63% (6902)
- 2.43% (6388)
- 1.62% (4244)
- 1.50% (3944)
- 1.49% (3901)
- 1.31% (3430)
- 1.31% (3430)
- 1.14% (3001)
- 0.83% (2187)
- 0.70% (1844)
- 0.52% (1372)
- 0.46% (1200)
- 0.46% (1200)

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	numberOfNodes...
0	[Git, Commit]	CONTAINS_CHANGE	[Git, Change]	72807	9971	
1	[Git, Change]	MODIFIES	[File, Git]	72807	72807	
2	[Git, Change]	UPDATES	[File, Git]	48805	72807	
3	[Git, Change]	CREATES	[File, Git]	16784	72807	
4	[Git, Commit]	HAS_PARENT	[Git, Commit]	10981	9971	
5	[Author, Git, Person]	COMMITTED	[Git, Commit]	9971	1183	
6	[Committer, Git, Person]	COMMITTED	[Git, Commit]	9971	371	
7	[Git, Change]	DELETES	[File, Git]	9959	72807	
8	[Git, Change]	RENAMES	[File, Git]	2741	72807	
9	[File, Git]	HAS_NEW_NAME	[File, Git]	1560	5097	
10	[Git, Tag]	ON_COMMIT	[Git, Commit]	1078	1078	
11	[Json, Value, Object]	HAS_KEY	[Json, Key]	668	133	
12	[Json, Key]	HAS_VALUE	[Json, Value, Scalar]	552	668	
13	[TS, Function]	DEPENDS_ON	[TS, ExternalDeclaration]	285	47	
14	[TS, ExternalModule]	EXPORTS	[TS, ExternalDeclaration]	215	25	
15	[File, TS, Local, Module, Mark4ModuleWeaklyCon...]	DEPENDS_ON	[TS, ExternalDeclaration]	192	3	
16	[Package, File, Json, NPM]	DECLARES_DEV_DEPENDENCY	[NPM, Dependency]	169	29	
17	[Package, File, Json, NPM]	DECLARES_DEPENDENCY	[NPM, Dependency]	161	29	
18	[Type, TS, Union, ExternalType]	CONTAINS	[Type, TS, Primitive, ExternalType]	144	117	
19	[Type, TS, Declared, ExternalType]	REFERENCES	[TS, ExternalDeclaration]	141	272	
20	[TS, Function]	DEPENDS_ON	[TS, ExternalModule]	131	47	
21	[Type, TS, Union, ExternalType]	CONTAINS	[Type, TS, Literal, ExternalType]	119	117	
22	[Json, Key]	HAS_VALUE	[Json, Value, Object]	104	668	
23	[Type, Object, TS, ExternalType]	HAS_MEMBER	[Type, TS, ObjectMember, ExternalType]	98	38	
24	[Package, File, Json, NPM]	DECLARES_SCRIPT	[NPM, Script]	91	29	
25	[Type, TS, Union, ExternalType]	CONTAINS	[Type, TS, Declared, ExternalType]	69	117	
26	[File, Directory]	CONTAINS	[File, Directory]	63	34	
27	[TS, Interface]	DECLARES	[TS, Property]	61	18	
28	[File, Directory]	CONTAINS	[Package, File, Json, NPM]	58	34	
29	[File, Git]	RESOLVES_TO	[Package, File, Json, NPM]	57	5097	

Graph Density

```
total_number_of_nodes (vertices): 94061
total_number_of_relationships (edges): 262509
-> total directed graph density: 2.9670825648918892e-05
-> total directed graph density in percent: 0.002967082564891889
```