

Natural Language	Cypher Queries	NEO4J Results			
➡ Main node: Method					
<p>Which methods are used by authors the most?</p> <p>Return the top 20, along with their names,wikidata urls and descriptions.</p>	<p>MATCH (p:Person)-[r:USES_METHOD]->(m:Method) RETURN COUNT(r) AS NumUses, m.name AS Method, m.wikidata_url AS WikidataURL, m.description AS MethodDescription ORDER BY NumUses DESC LIMIT 20</p>				
		NumUses	Method	WikidataURL	MethodDescription
		68	"pollen analysis"	"https://www.wikidata.org/wiki/Q212919"	"Palynology is the study of microorganisms and microscopic fragments of mega-organisms that are composed of acid-resistant organic material and occur in sediments, sedimentary rocks, and even some metasedimentary rocks. Palynomorphs are the microscopic, acid-resistant organic remains and debris produced by a wide variety of plants, animals, and Protista that have existed since the late Proterozoic."
		45	"radiocarbon dating"	"https://www.wikidata.org/wiki/Q173412"	"Radiocarbon dating (also referred to as carbon dating or carbon-14 dating) is a method for determining the age of an object containing organic material by using the properties of radiocarbon, a radioactive isotope of carbon. The method was developed in the late 1940s at the University of Chicago by Willard Libby."
		37	"AMS"	"https://www.wikidata.org/wiki/Q530255"	"Accelerator mass spectrometry (AMS) is a form of mass spectrometry that accelerates ions to extraordinarily high kinetic energies before mass analysis."
<p>Which topics are most commonly covered in articles written by researchers who use radiocarbon dating, and what is the count of such articles per topic?</p>	<p>MATCH(m:Method) WHERE m.name = 'radiocarbon dating' WITH m MATCH(p:Person)-[:USES_METHOD]->(m) WITH p,m MATCH(t:Topic)-[:IS_TOPIC_OF]->(art:Article)<-[:IS_AUTHOR_OF]-(p) RETURN t.name AS Topics, COUNT(r) AS numRD ORDER BY numRD DESC</p>				
		Topics	numRD		
		"Biological sciences - Paleontology"	77		
		"Social Sciences"	77		
		"Archaeology"	77		
		"Botany & Plant Sciences"	42		
		"Agriculture"	42		
		"Science & Mathematics"	42		
		"Anthropology"	30		

Which research methods are most commonly used by authors who write articles in the topic 'Archaeology,' and how many articles are associated with each method?	<pre>MATCH (p:Person)-[:USES_METHOD]->(m:Method) MATCH (t:Topic {name: 'Archaeology'})-[:IS_TOPIC_OF]->(art:Article)-[:IS_AUTHOR_OF]-(p) RETURN m.name AS Method, COUNT(*) AS NumUsesInArchaeology ORDER BY NumUsesInArchaeology DESC</pre>	<table><tr><th>Method</th><th>NumUsesInArchaeology</th></tr><tr><td>"pollen analysis"</td><td>142</td></tr><tr><td>"radiocarbon dating"</td><td>77</td></tr><tr><td>"AMS"</td><td>75</td></tr><tr><td>"PCA"</td><td>57</td></tr><tr><td>"AMS radiocarbon dating"</td><td>54</td></tr><tr><td>"cluster analysis"</td><td>46</td></tr><tr><td>"variation partitioning"</td><td>42</td></tr><tr><td>"resitivity survey"</td><td>37</td></tr></table>	Method	NumUsesInArchaeology	"pollen analysis"	142	"radiocarbon dating"	77	"AMS"	75	"PCA"	57	"AMS radiocarbon dating"	54	"cluster analysis"	46	"variation partitioning"	42	"resitivity survey"	37
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Regarding methods containing 'AMS', display all the information.	<pre>MATCH (m:Method) WHERE m.name CONTAINS 'AMS' AND m.qid IS NOT NULL AND m.description IS NOT NULL AND m.wikipedia_url IS NOT NULL AND m.wikidata_url IS NOT NULL AND m.aliases IS NOT NULL AND size(m.aliases) > 0 // to exclude empty lists RETURN m.name AS MethodName, m.qid AS QID, m.description AS Description, m.wikipedia_url AS WikipediaURL, m.wikidata_url AS WikidataURL, m.aliases AS Aliases</pre>	<table><tr><th>MethodName</th><th>QID</th><th>Description</th><th>WikipediaURL</th><th>WikidataURL</th><th>Aliases</th></tr><tr><td>"AMS ¹⁴C"</td><td>"Q173412"</td><td>"Radiocarbon dating (also referred to as carbon dating or carbon-14 dating) is a method for determining the age of an object containing organic material by using the properties of radiocarbon, a radioactive isotope of carbon. The method was developed in the late 1940s at the University of Chicago by Willard Libby."</td><td>"https://en.wikipedia.org/wiki/Radiocarbon_dating"</td><td>"https://www.wikidata.org/wiki/Q173412"</td><td>["carbon dating"]</td></tr><tr><td>"AMS-dating"</td><td>"Q173412"</td><td>"Radiocarbon dating (also referred to as carbon dating or carbon-14 dating) is a method for determining the age of an ob</td><td>"https://en.wikipedia.org/wiki/Radiocarbon_datin</td><td>"https://www.wikidata.org/wiki/Q173412"</td><td>["carbon dating"]</td></tr></table>	MethodName	QID	Description	WikipediaURL	WikidataURL	Aliases	"AMS ¹⁴ C"	"Q173412"	"Radiocarbon dating (also referred to as carbon dating or carbon-14 dating) is a method for determining the age of an object containing organic material by using the properties of radiocarbon, a radioactive isotope of carbon. The method was developed in the late 1940s at the University of Chicago by Willard Libby."	"https://en.wikipedia.org/wiki/Radiocarbon_dating"	"https://www.wikidata.org/wiki/Q173412"	["carbon dating"]	"AMS-dating"	"Q173412"	"Radiocarbon dating (also referred to as carbon dating or carbon-14 dating) is a method for determining the age of an ob	"https://en.wikipedia.org/wiki/Radiocarbon_datin	"https://www.wikidata.org/wiki/Q173412"	["carbon dating"]
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Find all methods represented in articles published in 2016.

MATCH (art:Article)
WHERE art.publication_year = 2016
WITH art
MATCH (m:Method)-[:USES_METHOD]-(p:Person)-[:IS_AUTHOR_OF]-(art)
WITH art, COLLECT(DISTINCT m.name) AS Methods
RETURN art.title AS Title, size(Methods) AS NumMethods, Methods
ORDER BY size(Methods) DESC

Title	NumMethods	Methods
"Unravelling the past 1,000 years of history of human-climate-landscape interactions at the Lindu plain, Sulawesi, Indonesia"	20	["pollen analysis", "cluster analysis", "PC A", "Multivariate classification trees (MCTs)", "splitting test", "PCA", "nonmetric multidimensional scaling (NMDS)", "correspondence analysis (CA)", "Procrustes analysis", "Detrended correspondence analysis (DCA)", "squared chord distance (SCD)", "principal components analysis (PCA)", "magnetostatigraphy", "Principal component analysis (PCA)", "multivariate statistical analysis", "sediment and pollen analysis", "radiocarbon dating", "remote sensing", "geomorphological analysis", "AMS radiocarbon dating"]
"Differentiating vegetation types from eastern South American ecosystems based on modern and subfossil pollen samples: evaluating modern analogues"	20	["cluster analysis", "PC A", "Multivariate classification trees (MCTs)", "splitting test", "PCA", "nonmetric multidimensional scaling (NMDS)", "correspondence analysis (CA)", "Procrustes analysis", "Detrended correspondence analysis (DCA)", "squared chord distance (SCD)", "principal components analysis (PCA)", "pollen analysis", "magnetostatigraphy", "Principal component analysis (PCA)", "multivariate statistical analysis", "sediment and pollen analysis", "radiocarbon dating", "remote sensing", "geomorphological analysis", "AMS radiocarbon dating"]

➡ Main node: Activity

Find the articles that were published in 2016 and were referring to activities concerning “dating”.

MATCH (act:Activity)-[:HAS_SENTENCE_CONTEXT]-(s:Sentence)-[:IS_PART_OF]-(art:Article)
WHERE toLower(act.textual_span) CONTAINS 'dating' AND art.publication_year = 2016
RETURN art.title AS ArticleTitle, COUNT(act) AS NumActivities
ORDER BY NumActivities DESC

ArticleTitle	NumActivities
"High-Precision Radiocarbon Dating Application to Multi-proxy Organic Materials From Late Foraging To Early Pastoral Sites In Upper Nubia, Sudan"	1
"Understanding the human impact on Akita-sugi cedar (Cryptomeria japonica) forest in the late Holocene through pollen analysis of annually laminated sediments from Ichi-no-Megata, Akita, Japan"	1
"Late Holocene regime shifts in moorland ecosystems: high resolution data from the Pennines, UK"	1
"Impact of landscape changes on obsidian exploitation since the Palaeolithic in the central highland of Japan"	1
"Vegetation and fire history of coastal north-eastern Sardinia (Italy) under changing Holocene climates and land use"	1

<p>Regarding the top 10 activites that appear more, return authors who have participated in them.</p>	<pre>MATCH (p:Person)-[:PARTICIPATES_IN]->(a:Activity) WITH a, COUNT(r) AS NumOfAuthors, COLLECT(p.full_name) AS Authors RETURN a.textual_span AS Activity, NumOfAuthors, Authors ORDER BY Participants DESC LIMIT 10</pre>	<table><thead><tr><th>Activity</th><th>Participants</th><th>Authors</th></tr></thead><tbody><tr><td>"Previously sampled loci and newly discovered brush hut remains and hearth concentrations were excavated"</td><td>36</td><td>["יוסי זיידנר", "ליאור וייסברוד", "חנה חלבי", "אהוד", "גרינברג", "טוג'ן גרייב", "גיל אחר", "עומר אפסור", "עירית זוהר", "אודי וייס", "טל סימונס", "רבקה רבינו", "ביץ", "ישראל הרשקוביץ", "מרדכי כסלו", "אליזבטה בואר", "טו", "מרים בלמייקר", "דניאלה בר-יוסף מאיר", "אלכסנ", "דני נדל", "YOSSEI ZIDNER", "LIOR WEISSB", "Hanan Halabi", "EHUD GRINBERG", "TUGAN GHRAI", "EB", "GIL EMMER", "OMAR ASFUR", "Irit Zohar", "UDI WEISS", "TAL SIMMONS", "RIVKA RABINOVICH", "ISRAEL HERSHKOVITZ", "MORDECHAI E. KISLEV", "ELIZABETTA B", "OARETTO", "MIRIAM BELMAKER", "DANIELA E. BAR-YOSEF", "MAYER", "ALEXANDER TSATSKIN", "Dani Nadel"]</td></tr><tr><td>"a resitivity survey was carried out by Kerry Ely, Richard McConnell, and Alex Turner"</td><td>36</td><td>["Steven Allen", "David Richards", "Norman Shiel", "Jane Timby", "Sheila Hamilton-Dyer", "Gerard Aalbersberg", "Huw Williams", "Heather Tinsley", "David Smith", "Anthony Margetts", "Jen Heathcote", "Simon Haslett", "Chris Gleed-Owen", "Simon Dobinson", "Paul Davies", "Nigel Cameron", "Julie Jones", "H. Williams", "H. Tinsley", "J. Timby", "J. Smith", "D. ..."]</td></tr></tbody></table>	Activity	Participants	Authors	"Previously sampled loci and newly discovered brush hut remains and hearth concentrations were excavated"	36	["יוסי זיידנר", "ליאור וייסברוד", "חנה חלבי", "אהוד", "גרינברג", "טוג'ן גרייב", "גיל אחר", "עומר אפסור", "עירית זוהר", "אודי וייס", "טל סימונס", "רבקה רבינו", "ביץ", "ישראל הרשקוביץ", "מרדכי כסלו", "אליזבטה בואר", "טו", "מרים בלמייקר", "דניאלה בר-יוסף מאיר", "אלכסנ", "דני נדל", "YOSSEI ZIDNER", "LIOR WEISSB", "Hanan Halabi", "EHUD GRINBERG", "TUGAN GHRAI", "EB", "GIL EMMER", "OMAR ASFUR", "Irit Zohar", "UDI WEISS", "TAL SIMMONS", "RIVKA RABINOVICH", "ISRAEL HERSHKOVITZ", "MORDECHAI E. KISLEV", "ELIZABETTA B", "OARETTO", "MIRIAM BELMAKER", "DANIELA E. BAR-YOSEF", "MAYER", "ALEXANDER TSATSKIN", "Dani Nadel"]	"a resitivity survey was carried out by Kerry Ely, Richard McConnell, and Alex Turner"	36	["Steven Allen", "David Richards", "Norman Shiel", "Jane Timby", "Sheila Hamilton-Dyer", "Gerard Aalbersberg", "Huw Williams", "Heather Tinsley", "David Smith", "Anthony Margetts", "Jen Heathcote", "Simon Haslett", "Chris Gleed-Owen", "Simon Dobinson", "Paul Davies", "Nigel Cameron", "Julie Jones", "H. Williams", "H. Tinsley", "J. Timby", "J. Smith", "D. ..."]
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<p>Find authors using the same methods with 'Robyn Pickering' and also the number of activities that they have participated in.</p>	<pre>MATCH (p:Person {full_name: 'Robyn Pickering'})-[:USES_METHOD]->(m:Method) WITH p, COLLECT(DISTINCT m) AS Methods UNWIND Methods AS x MATCH (per:Person)-[:USES_METHOD]-(x) WITH per,x MATCH (per)-[:PARTICIPATES_IN]->(a:Activity) RETURN per.full_name AS Authors, x.name AS Methods, COUNT(a) AS NumActivities</pre>	<table><thead><tr><th>Authors</th><th>Methods</th><th>NumActivities</th></tr></thead><tbody><tr><td>"Robyn Pickering"</td><td>"laser ablation concentration"</td><td>2</td></tr></tbody></table>	Authors	Methods	NumActivities	"Robyn Pickering"	"laser ablation concentration"	2			
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"Robyn Pickering"	"laser ablation concentration"	2									

How many times are activities using verbs like 'use', 'analyse' or 'measure'?	<pre>MATCH (a:Activity) WHERE a.textual_span CONTAINS 'use' WITH collect(a) AS verb1 MATCH (a:Activity) WHERE a.textual_span CONTAINS 'measure' WITH verb1, collect(a) AS verb2 MATCH (a:Activity) WHERE a.textual_span CONTAINS 'analyse' WITH verb1,verb2, collect(a) AS verb3 RETURN size(verb1) AS Use, size(verb3) AS Analyse, size(verb2) AS Measure</pre>	<table><tr><td>Use</td><td>Analyse</td><td>Measure</td></tr><tr><td>108</td><td>46</td><td>19</td></tr></table>	Use	Analyse	Measure	108	46	19
Use	Analyse	Measure						
108	46	19						

➡ Main node: Goal

Retrieve all methods that are used by activities which have objectives related to "analysis" or "date".	<pre>MATCH (g:Goal)-[:HAS_OBJECTIVE]-(a:Activity)-[:EMPLOYS]->(m:Method) WHERE g.textual_span CONTAINS 'analysis' OR g.textual_span CONTAINS 'date' RETURN DISTINCT m.name AS MethodName ORDER BY m.name</pre>	MethodName
		"Detrended correspondence analysis (DCA) "
		"Redundancy analysis (RDA) "
		"Tuff I group method"
		"archaeological and dendrochronological analyses"
		"linear regression"
		"trace element analysis"

Retrieve all authors who participate in activities employing specific methods and whose objectives relate to "reconstruct" or "vegetation" or "enviroment". For each author, show the methods used and the corresponding goal.	<pre>MATCH (p:Person)-[:PARTICIPATES_IN]->(a:Activity)-[:EMPLOYS]->(m:Method) MATCH (a)-[:HAS_OBJECTIVE]->(g:Goal) WHERE g.textual_span CONTAINS 'reconstruct' AND (g.textual_span CONTAINS 'environment' OR g.textual_span CONTAINS 'vegetation') RETURN DISTINCT p.full_name AS Author, COLLECT(DISTINCT m.name) AS Methods, g.textual_span AS Goal ORDER BY Author</pre>	<table><tr><th>Author</th><th>Methods</th><th>Goal</th></tr><tr><td>"Aaron P. Potito"</td><td>["Pollen analysis"]</td><td>"reconstruct vegetation"</td></tr><tr><td>"Arghya K. Hait"</td><td>["sediment and pollen analysis"]</td><td>"reconstruct the Holocene mangrove and environmental changes at a coastal site Pakhiralaya in the Sundarban Biosphere Reserve in the western Ganga–Brahmaputra Delta, India"</td></tr><tr><td>"Carole Adolf"</td><td>["charcoal analysis"]</td><td>"reconstruct the vegetation and fire history in north-eastern Sardinia"</td></tr><tr><td>"Carole Adolf"</td><td>["pollen and spore analysis"]</td><td>"reconstruct extra-local to regional vegetation dynamics"</td></tr><tr><td>"Carole Adolf"</td><td>["pollen and spore analysis"]</td><td>"reconstruct local vegetation dynamics"</td></tr><tr><td>"Daniele Colombaroli"</td><td>["charcoal analysis"]</td><td>"reconstruct the vegetation and fire history in north-eastern Sardinia"</td></tr><tr><td>"Daniele Colombaroli"</td><td>["pollen and spore analysis"]</td><td>"reconstruct extra-local to regional vegetation dynamics"</td></tr><tr><td>"Daniele Colombaroli"</td><td>["pollen and spore analysis"]</td><td>"reconstruct local vegetation dynamics"</td></tr></table>	Author	Methods	Goal	"Aaron P. Potito"	["Pollen analysis"]	"reconstruct vegetation"	"Arghya K. Hait"	["sediment and pollen analysis"]	"reconstruct the Holocene mangrove and environmental changes at a coastal site Pakhiralaya in the Sundarban Biosphere Reserve in the western Ganga–Brahmaputra Delta, India"	"Carole Adolf"	["charcoal analysis"]	"reconstruct the vegetation and fire history in north-eastern Sardinia"	"Carole Adolf"	["pollen and spore analysis"]	"reconstruct extra-local to regional vegetation dynamics"	"Carole Adolf"	["pollen and spore analysis"]	"reconstruct local vegetation dynamics"	"Daniele Colombaroli"	["charcoal analysis"]	"reconstruct the vegetation and fire history in north-eastern Sardinia"	"Daniele Colombaroli"	["pollen and spore analysis"]	"reconstruct extra-local to regional vegetation dynamics"	"Daniele Colombaroli"	["pollen and spore analysis"]	"reconstruct local vegetation dynamics"
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Find authors the use methods for objectives that are related to 'comparison'.	<pre>MATCH (a:Activity)-[:HAS_OBJECTIVE]->(g:Goal) WHERE g.textual_span CONTAINS 'compare' WITH a,g MATCH (a)-[:EMPLOYS]->(m:Method) WITH a,g,m MATCH (p:Person)-[:USES_METHOD]-(m) WITH m, collect(p.full_name) AS Authors RETURN DISTINCT m.name AS Methods, Authors ORDER BY Methods</pre>	<table><tr><th>Methods</th><th>Authors</th></tr><tr><td>"Pearson's chi-square test"</td><td>["Linda G. Lynch"]</td></tr><tr><td>"Principal component analysis (PCA)"</td><td>["Hermann Behling", "Guillaume St-Onge", "Liang-Chi Wang", "Torsten Haberzettl", "Siria Biagioni"]</td></tr><tr><td>"Procrustes analysis"</td><td>["Thomas Giesecke", "Hermann Behling", "Jackson Martins Rodrigues"]</td></tr><tr><td>"detrended canonical correspondence analysis (DCC A)"</td><td>["Althea L. Davies"]</td></tr><tr><td>"principal components analysis (PCA)"</td><td>["Althea L. Davies"]</td></tr><tr><td>"radiocarbon analysis"</td><td>["Michele L. Koons"]</td></tr><tr><td>"squared chord distance (SCD)"</td><td>["Thomas Giesecke", "Hermann Behling", "Jackson Martins Rodrigues"]</td></tr></table>	Methods	Authors	"Pearson's chi-square test"	["Linda G. Lynch"]	"Principal component analysis (PCA)"	["Hermann Behling", "Guillaume St-Onge", "Liang-Chi Wang", "Torsten Haberzettl", "Siria Biagioni"]	"Procrustes analysis"	["Thomas Giesecke", "Hermann Behling", "Jackson Martins Rodrigues"]	"detrended canonical correspondence analysis (DCC A)"	["Althea L. Davies"]	"principal components analysis (PCA)"	["Althea L. Davies"]	"radiocarbon analysis"	["Michele L. Koons"]	"squared chord distance (SCD)"	["Thomas Giesecke", "Hermann Behling", "Jackson Martins Rodrigues"]											
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➡ Main node: Person

Retrieve all scholars (authors), their affiliated organizations, and the number of distinct articles each authors has authored. Then, list them in descending order of their publication count.	<pre>MATCH (p:Person)-[:IS_AFFILIATED_TO]->(org:Organization) MATCH (p)-[:IS_AUTHOR_OF]->(art:Article) RETURN p.full_name AS Scholar, org.name AS Organization, COUNT(DISTINCT art) AS Publications ORDER BY Publications DESC</pre>	<table><tr><th>Scholar</th><th>Organization</th><th>Publications</th></tr><tr><td>"Hermann Behling"</td><td>"Universtiy of Göttingen"</td><td>9</td></tr><tr><td>"Fiona Petchey"</td><td>"University of Waikato"</td><td>4</td></tr><tr><td>"William A. Lovis"</td><td>"Michigan State University"</td><td>4</td></tr><tr><td>"William A. Lovis"</td><td>"New York University"</td><td>4</td></tr></table>	Scholar	Organization	Publications	"Hermann Behling"	"Universtiy of Göttingen"	9	"Fiona Petchey"	"University of Waikato"	4	"William A. Lovis"	"Michigan State University"	4	"William A. Lovis"	"New York University"	4
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Create a table with authors and the methods that they are using, starting from the scholars that use the most methods.	<pre>MATCH (p:Person)-[:USES_METHOD]-(m:Method) RETURN p.full_name AS Name, COUNT (*) AS Total, COLLECT(m.name) AS Methods ORDER BY Total DESC</pre>	<table><tr><th>Name</th><th>Total</th><th>Methods</th></tr><tr><td>"Hermann Behling"</td><td>27</td><td>["pollen analysis", "AMS radiocarbon dating", "geomorphological analysis", "remote sensing", "radiocarbon dating", "pollen analysis", "pollen analysis", "sediment and pollen analysis", "pollen analysis", "magnetostratigraphy", "multivariate statistical analysis", "Principal component analysis (PCA)", "magnetostratigraphy", "principal components analysis (PCA)", "PCA", "squared chord distance (SCD)", "Detrended correspondence analysis (DCA)", "Procrustes analysis", "correspondence analysis (CA)", "nonmetric multidimensional scaling (NMDS)", "PC A", "cluster analysis", "PCA", "splitting test", "Multivariate classification trees (MCTs)", "PC A", "cluster analysis"]</td></tr><tr><td>"Ian A. Simpson"</td><td>17</td><td>["model analyses", "autoregressive integrated moving-average (ARIMA) model", "AMS radiocarbon dating", "pollen analysis", "AMS dating", "soil analyses", "Dumas technique", "gas chromatography", "rarefaction analysis", "Kjeldahl method", "Dumas technique", "acid-persulfate digestion", "soil analysis", "Walkley-Black method", "micromorphology", "Akaike's information criterion (AIC)", "CENTURY modeling"]</td></tr><tr><td>"Thomas Giesecke"</td><td>14</td><td>["principal components analysis (PCA)", "PCA", "squared chord distance (SCD)", "Detrended correspondence analysis (DCA)", "Procrustes analysis", "correspondence analysis (CA)", "nonmetric multidimensional scaling (NMDS)", "PC A", "cluster analysis", "PCA", "splitting test", "Multivariate classification trees (MCTs)", "PC A", "cluster analysis"]</td></tr><tr><td>"Jackson Martins Rodrigues"</td><td>14</td><td>["principal components analysis (PCA)", "PCA", "squared chord distance (SCD)", "Detrended correspondence analysis (DCA)", "Procrustes analysis", "correspondence analysis (CA)", "nonmetric multidimensional scaling (NMDS)", "PC A", "cluster analysis", "PCA", "splitting test", "Multivariate classification trees (MCTs)", "PC A", "cluster analysis"]</td></tr></table>	Name	Total	Methods	"Hermann Behling"	27	["pollen analysis", "AMS radiocarbon dating", "geomorphological analysis", "remote sensing", "radiocarbon dating", "pollen analysis", "pollen analysis", "sediment and pollen analysis", "pollen analysis", "magnetostratigraphy", "multivariate statistical analysis", "Principal component analysis (PCA)", "magnetostratigraphy", "principal components analysis (PCA)", "PCA", "squared chord distance (SCD)", "Detrended correspondence analysis (DCA)", "Procrustes analysis", "correspondence analysis (CA)", "nonmetric multidimensional scaling (NMDS)", "PC A", "cluster analysis", "PCA", "splitting test", "Multivariate classification trees (MCTs)", "PC A", "cluster analysis"]	"Ian A. Simpson"	17	["model analyses", "autoregressive integrated moving-average (ARIMA) model", "AMS radiocarbon dating", "pollen analysis", "AMS dating", "soil analyses", "Dumas technique", "gas chromatography", "rarefaction analysis", "Kjeldahl method", "Dumas technique", "acid-persulfate digestion", "soil analysis", "Walkley-Black method", "micromorphology", "Akaike's information criterion (AIC)", "CENTURY modeling"]	"Thomas Giesecke"	14	["principal components analysis (PCA)", "PCA", "squared chord distance (SCD)", "Detrended correspondence analysis (DCA)", "Procrustes analysis", "correspondence analysis (CA)", "nonmetric multidimensional scaling (NMDS)", "PC A", "cluster analysis", "PCA", "splitting test", "Multivariate classification trees (MCTs)", "PC A", "cluster analysis"]	"Jackson Martins Rodrigues"	14	["principal components analysis (PCA)", "PCA", "squared chord distance (SCD)", "Detrended correspondence analysis (DCA)", "Procrustes analysis", "correspondence analysis (CA)", "nonmetric multidimensional scaling (NMDS)", "PC A", "cluster analysis", "PCA", "splitting test", "Multivariate classification trees (MCTs)", "PC A", "cluster analysis"]
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Select authors who are affiliated with an organization and calculate how many publications they have.	<pre>MATCH (p:Person)-[:IS_AUTHOR_OF]->(art:Article) RETURN p.full_name AS Author, COUNT(DISTINCT art) AS NumWorks ORDER BY NumWorks DESC LIMIT 100</pre>	<table><tr><th>Author</th><th>NumWorks</th></tr><tr><td>"Hermann Behling"</td><td>9</td></tr><tr><td>"Anneli Poska"</td><td>7</td></tr><tr><td>"Thomas Giesecke"</td><td>6</td></tr><tr><td>"John P. Hart"</td><td>5</td></tr><tr><td>"Ian A. Simpson"</td><td>5</td></tr></table>	Author	NumWorks	"Hermann Behling"	9	"Anneli Poska"	7	"Thomas Giesecke"	6	"John P. Hart"	5	"Ian A. Simpson"	5			
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<p>Find the most popular research topics of the publisher with the most publications.</p>	<pre>//Find the publishers with the most articles MATCH (a:Article) WITH a.publisher AS publisher, COUNT(a) AS numArticles ORDER BY numArticles DESC LIMIT 1 //For that publisher, find the most popular topics MATCH (t:Topic)-[:IS_TOPIC_OF]->(art:Article {publisher: publisher}) RETURN publisher AS Publisher, t.name AS Topic, COUNT(art) AS Popularity ORDER BY Popularity DESC</pre>	<table><tr><th>Publisher</th><th>Topic</th><th>Popularity</th></tr><tr><td>"Springer"</td><td>"Social Sciences"</td><td>228</td></tr><tr><td>"Springer"</td><td>"Archaeology"</td><td>228</td></tr><tr><td>"Springer"</td><td>"Biological sciences - Paleontology"</td><td>220</td></tr><tr><td>"Springer"</td><td>"Botany & Plant Sciences"</td><td>148</td></tr><tr><td>"Springer"</td><td>"Agriculture"</td><td>148</td></tr><tr><td>"Springer"</td><td>"Science & Mathematics"</td><td>148</td></tr><tr><td>"Springer"</td><td>"Biological sciences - Ecology"</td><td>66</td></tr><tr><td>"Springer"</td><td>"Area Studies"</td><td>25</td></tr><tr><td>"Springer"</td><td>"African Studies"</td><td>25</td></tr><tr><td>"Springer"</td><td>"History"</td><td>13</td></tr></table>	Publisher	Topic	Popularity	"Springer"	"Social Sciences"	228	"Springer"	"Archaeology"	228	"Springer"	"Biological sciences - Paleontology"	220	"Springer"	"Botany & Plant Sciences"	148	"Springer"	"Agriculture"	148	"Springer"	"Science & Mathematics"	148	"Springer"	"Biological sciences - Ecology"	66	"Springer"	"Area Studies"	25	"Springer"	"African Studies"	25	"Springer"	"History"	13
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"Springer"	"Area Studies"	25																																	
"Springer"	"African Studies"	25																																	
"Springer"	"History"	13																																	

➡ Main node: Aggregation

	<pre>MATCH (p:Person)-[:IS_AFFILIATED_TO]->(org:Organization {name: "Yale University"}) WITH COLLECT(p) AS yaleScholars UNWIND yaleScholars AS x MATCH (x)-[:IS_AUTHOR_OF]->(art:Article) WITH art MATCH (art)-[:IS_MEMBER_OF]->(ag:Aggregation) RETURN DISTINCT ag.name AS Aggregations ORDER BY Aggregations</pre>	<table><tr><th>Aggregations</th></tr><tr><td>"Journal of World Prehistory"</td></tr><tr><td>"The African Archaeological Review"</td></tr><tr><td>"The South African Archaeological Bulletin"</td></tr><tr><td>"Vegetation History and Archaeobotany"</td></tr></table>	Aggregations	"Journal of World Prehistory"	"The African Archaeological Review"	"The South African Archaeological Bulletin"	"Vegetation History and Archaeobotany"
Aggregations							
"Journal of World Prehistory"							
"The African Archaeological Review"							
"The South African Archaeological Bulletin"							
"Vegetation History and Archaeobotany"							

Find aggregations related to 'regression' methods, return the methods names and group them by number of articles.

MATCH (a:Activity)-[:EMPLOYS]->(m:Method)

WHERE m.name CONTAINS 'regression'

WITH m

MATCH(p:Person)-[:USES_METHOD]->(m)

WITH m,p

MATCH (p)-[:IS_AUTHOR_OF]->(art:Article)

WITH m,art

MATCH (art)-[:IS_MEMBER_OF]->(ag:Aggregation)

RETURN m.name AS Methods, COUNT(DISTINCT art) AS NumArticles, COLLECT (DISTINCT ag.name) AS Aggregations

ORDER BY numArticles DESC

Methods	NumArticles	Aggregations
"Whallon's (1969) regression"	5	["Archaeology of Eastern North America", "American Antiquity", "Midcontinental Journal of Archaeology", "Journal of Archaeological Research"]
"Linear regressions"	3	["The African Archaeological Review", "The South African Archaeological Bulletin"]
"linear regression"	3	["The African Archaeological Review", "The South African Archaeological Bulletin"]

Find the top 20 aggregations that are linked to the largest number of topics. For each aggregation, count how many distinct topics are associated with the articles that belong to it, and sort the aggregations from most to fewest topics.

MATCH (t:Topic)-[:IS_TOPIC_OF]->(art:Article)

MATCH (art)-[:IS_MEMBER_OF]->(ag:Aggregation)

RETURN ag.name AS Aggregation, COUNT(DISTINCT t) AS NumTopics

ORDER BY NumTopics DESC

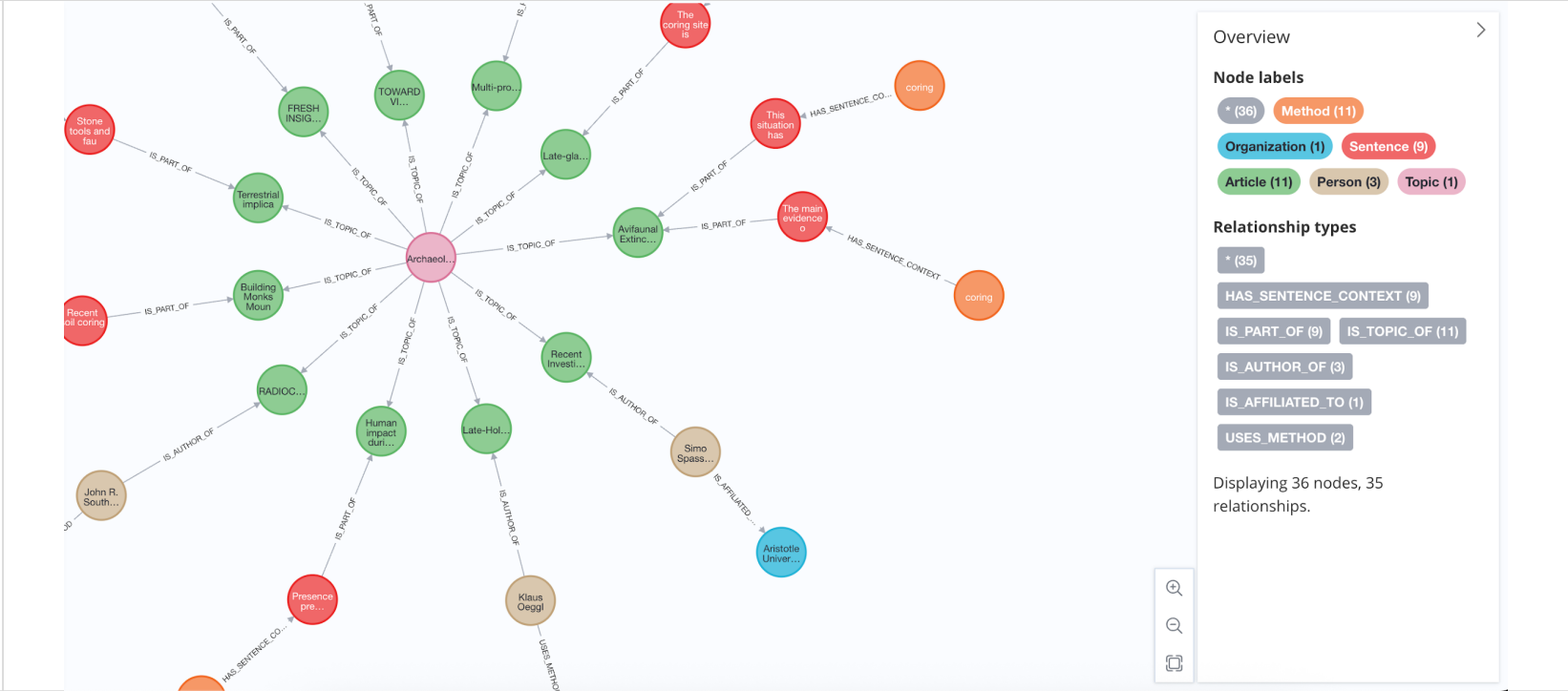
LIMIT 20

Aggregation	numTopics
"American Journal of Archaeology"	17
"Latin American Antiquity"	17
"Human Ecology"	16
"Historical Archaeology"	15
"Ancient Mesoamerica"	13
"Bulletin of the American Schools of Oriental Research"	11
"Vegetation History and Archaeobotany"	11

➡ Main node: Organization

Display the semantic path that associates 'Aristotle University of Thessaloniki' with the 'coring' method.

```
MATCH path = shortestPath((m:Method)-[*]-(org:Organization))
WHERE m.name = 'coring' AND org.name = 'Aristotle University of Thessaloniki'
RETURN path
```



Find all authors that participate in activities employing the method “pollen analysis” and display their name and ORCID number.

```
MATCH (p:Person)-[:PARTICIPATES_IN]->(a:Activity)-[:EMPLOYS]->(m:Method)
WHERE toLower(m.name) = 'pollen analysis'
RETURN DISTINCT p.full_name AS Author, p.orcid AS ORCID
ORDER BY Author
```

Author	ORCID
"Aaron P. Potito"	"0000-0003-0194-9552"
"Andrea Cardarelli"	"0000-0003-1601-3394"
"Andrew J. Dugmore"	"0000-0001-6556-717X"
"Anna Maria Mercuri"	null
"Anna Shevtsova"	null
"Anne E. Bjune"	"0000-0002-4509-0148"
"Anneli Poska"	null
"Björn E. Berglund"	null
"Carla Alberta Accorsi"	null
"Clarisse Beltrão Smith"	null

Show a table with scholars and the total number of organizations they are affiliated to.

MATCH (p:Person)-[:IS_AFFILIATED_TO]-(org:Organization)
RETURN p.full_name AS Authors, COUNT(*) AS NumAffiliations
ORDER BY NumAffiliations DESC

Authors	NumAffiliations
"Francesca Romagnoli"	25
"SHAW BADENHORST"	13
"Ernst Pernicka"	13
"Josef Veselý"	13
"Mary C. Stiner"	11