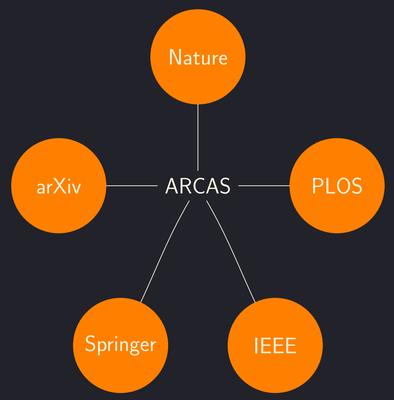
A bibliometric study of the Iterated Prisoner's Dilemma

① We collect scholarly data ② We identify research topics using topic modeling ③ We explore collaboration using co-authorship

https://www.nature.com/articles/s41599-021-00718-9

① HOW & FROM WHERE DO WE COLLECT DATA?



ARCAS is an open source tool with which we collect articles' meta-data in a few lines of code

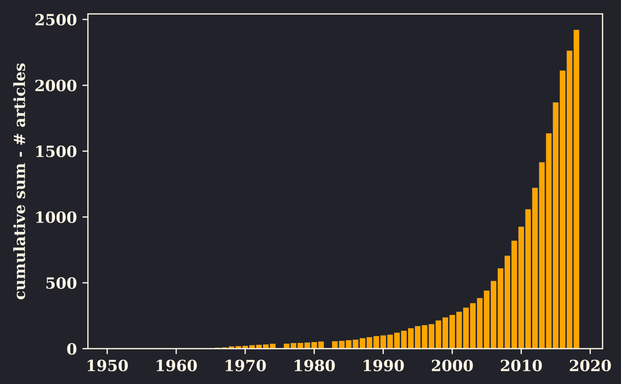
```
>>> import arcas

>>> api = arcas.Arxiv()
>>> params = api.parameters_fix(title="EHBEA",
                                abstract="EHBEA",
                                records=1)

>>> url = api.create_url_search(params)
>>> request = api.make_request(url)
>>> root = api.get_root(request)
>>> raw_article = api.parse(root)
>>> article = api.to_dataframe(raw_article[0])
```

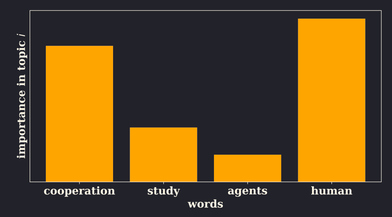
keywords: prisoner's dilemma, prisoners dilemma, prisoner dilemma, prisoners evolution, prisoner game theory

search field: title, abstract, text

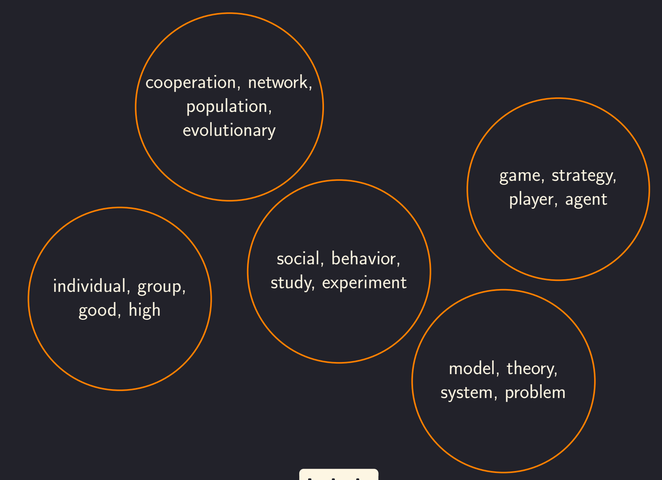


② WHAT DO RESEARCHERS WRITE ABOUT?

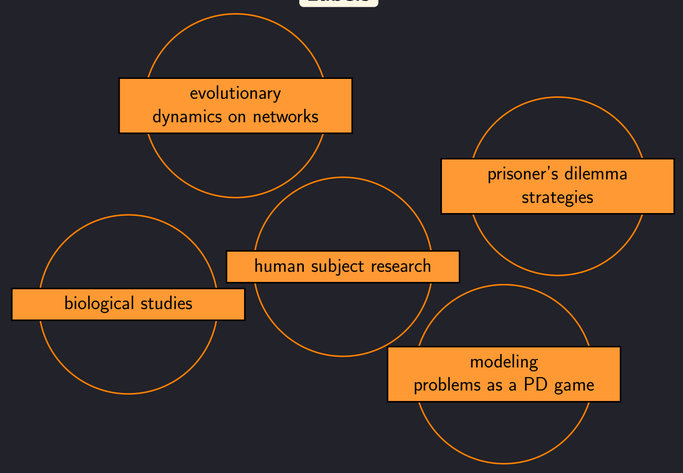
Latent Dirichlet Allocation



Most important words in each topic

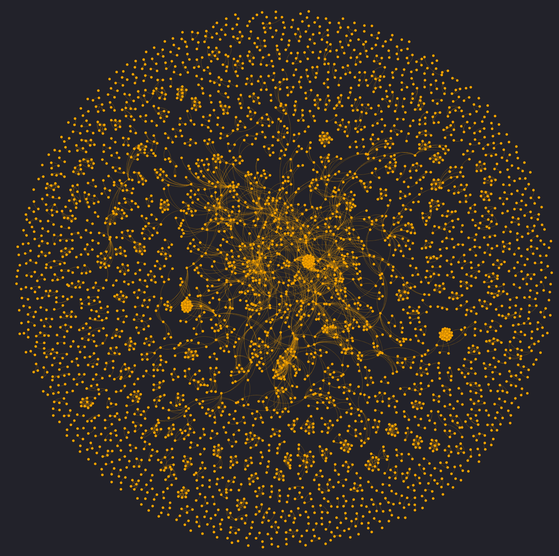


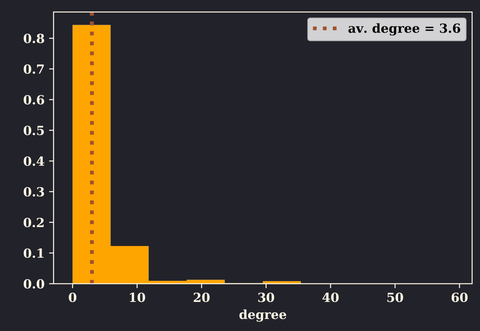
Labels



③ IS THE FIELD OF COOPERATION A COOPERATIVE FIELD?

Co-authorship network





How does this compare to other sub fields?

	# Nodes	Av. degree	% Isolated nodes	Clustering coeff	# Communities	Modularity
Prisoner's Dilemma	4221	3.621	8.0	0.666	1177	0.965264
Auction Games	5362	2.932	8.4	0.599	1493	0.957238
Price of Anarchy	1315	2.969	12.5	0.626	414	0.964498

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