

Detecting Influence Operations: A Case Study of the Iranian News Ecosystem

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What is a Link Scheme?

- Any site that creates “low-value content primarily for the purpose of manipulating linking and ranking signals”
- Motives:
 - Promote an agenda (information operation)
 - Sell as a service (paid link scheme)
- Can we tell if a link scheme is *likely* part of an information operation?

Peter Carragher, Evan M. Williams, Kathleen M. Carley. 2024. “Detection and Discovery of Misinformation Sources using Attributed Webgraphs” upcoming in ICWSM 2024

- Crains New York

- Crave On-Line

- Creator empire

- Creator Project

- Crimes of Empire

- Crooks and Liars

- Crosscut

- Crush The Street

- Crypto Globe

- Crypto potato

- Crypto Times .io

- Crypto-

historical significance instead of being the failed son of Kareem. young Adam also is known for being on the Family Feud with the cream family and making a total ass of himself numerous times in front of Steve Harvey who humiliated his ass and later joked about how stupid Kareem Abdul-Jabbar's son was in his appearances on the guest celebrity of Family Feud



Evan M. Willilams, Kathleen M. Carley. 2023. "Search engine manipulation to spread pro-Kremlin propaganda" in Harvard Kennedy School Misinformation Review, 2023

- Seattle Met

- Only Sky Media

- Wst Post

- Crypto Globe

- Skate Punks.net

- Okay Player

- Today Online (Singapore)

- Koimoi

- Local Today News (II)

- Rights and Dissent

- Defense News

- The Shaderoom.com

- Nation News

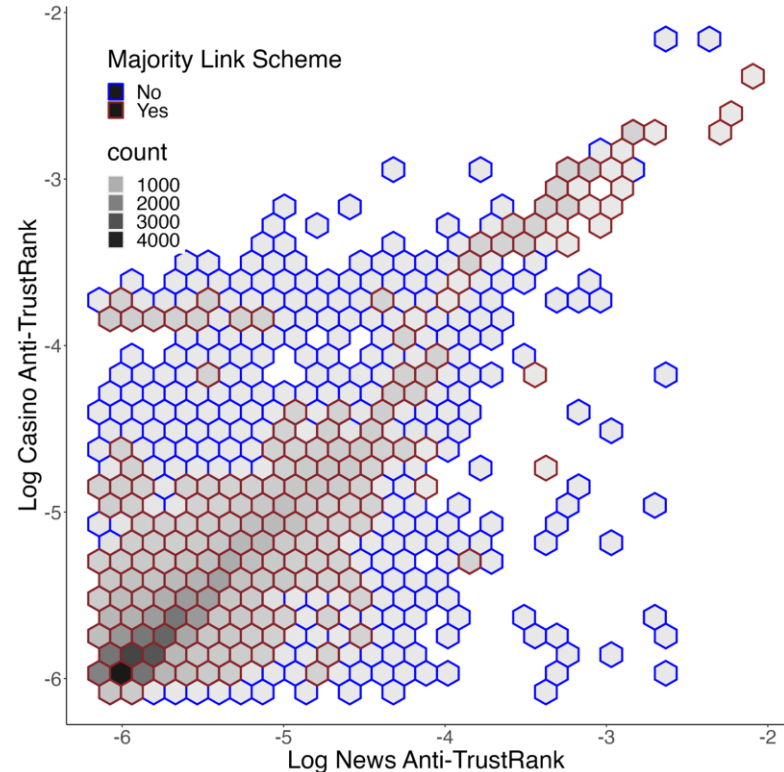
- New York Breaking

- [Washington Free Beacon](#)

- Sports Naut

Paid Link Schemes serve disreputable customers across site categories

- Linking to multiple site categories is rare
- To multiple unreliable categories even less so
- Sites that do this tend to be paid link schemes
- Why? Most often as a paid SEO service
- Why unreliable? Reputation is not valued



Peter Carragher, Evan M. Williams, Kathleen M. Carley. 2024.
“Misinformation Resilient Search Rankings with Webgraph-based Interventions” ACM Transactions on Intelligent Systems and Technology.



Package	\$5 Basic	\$50 Standard	\$100 Premium
	1 GUEST POST	10 GUEST POST	20 GUEST POST
	1 guest post with 1 dofollow backlink	10 guest post with 10 dofollow backlinks	20 guest post with 20 dofollow backlink
Off-page strategy	✓	✓	✓
Backlink analysis	✓	✓	✓
Delivery Time	<input checked="" type="radio"/> 3 days <input type="radio"/> 1 day (+\$5)	<input checked="" type="radio"/> 4 days <input type="radio"/> 1 day (+\$10)	<input checked="" type="radio"/> 5 days <input type="radio"/> 2 days (+\$15)
Total	\$5	\$50	\$100
	Select	Select	Select

HIGH QUALITY **DA 50+**

TF 30+

CONTEXTUAL BACKLINKS

ORDER NOW!

CASINO, POKKER, SLOT BACCARAT, UFABET

- ✓ BOOST RANKING
- ✓ WHITE HAT SEO
- ✓ DOFOLLOW LINKS

Paid Link Scheming is (transparent) black-hat SEO

Link spam

Google uses links as a factor in determining the relevancy of web pages. Any links that are intended to manipulate rankings in Google Search results may be considered link spam. This includes any behavior that manipulates links to your site or outgoing links from your site. The following are examples of link spam:

- Buying or selling links for ranking purposes. This includes:
 - Exchanging money for links, or posts that contain links
 - Exchanging goods or services for links
 - Sending someone a product in exchange for them writing about it and including a link

Global SEO Articles

Global SEO Articles

To search type and press enter



[Advanced search](#)

Add My Site

by jv on Feb 21, 2023 · 10:27 am

I will add your website to my directories

Hi, are you looking to add your website to our directories' websites? You are right place. Feel free to message me or direct order.

[My websites list](#)

[Buy Via PayPal](#)

[BUY POSTS / ADD MY SITE](#)

[BUY FEATURE POSTS / ADD MY SITE](#)



How do we know if a scheme is paid or unpaid?

NEW Click to enter the original [New Iron Abacus] Hong Kong Mark Six Lottery main forum

Macau New Railway Abacus: Save the screenshot of www.111461.com

Great news

Grand Lisboa 45033.com won the "Best Integrity Online Investment in 2021" issued by the Macau Gaming Inspection Bureau and signed a three-year contract with the webmaster! Deposit 30 million to this site! A truly large and powerful platform, fund security is fully guaranteed by the webmaster! Rest assured Betting! If you have any questions during the deposit and withdrawal process, please contact the webmaster!

 Macau Mark Six Lottery
special code 50 times

 Sign up now

 Hong Kong Mark Six Lottery
special code times

How do we know if a scheme is paid or unpaid?

Liuhe Code King has been upgraded and revised, please tell each other, and for more expert information, please drop down!!!

The genius remembered the website address of this website in one second: www.78044.com (click to bookmark)

The first choice for online investment (9055 Lottery). Hong Kong Mark Six Lottery 48.8 times, Time Lottery, Racing 9.96 times, real beauty, five-point speed Mark Six Lottery!



Liuhe Code King

78044.com

The Mark Six Lottery draws three times a week, usually at 8pm on Tuesdays, Thursdays and Saturdays. (Lotteries that are not being held)

The lottery results are held semi-annually, and TVB-J2 broadcasts the lottery results live. This website integrates a large number of accurate real-time information www.2626008.com and color pictures. It is open to lottery players for reference for your long term. If you are interested, contact us on the phone.

www.2727008.com

secret link, remember

[Liuhe Baodian](#) [Liuhe General](#) [Legend of Liuhe](#) [Lottery Record Macau](#) [Gambler Macau](#) [Ace Macau](#) [Gambler Macau](#) [Gambler Macau](#) [Gambler Supreme](#) [Gallery](#) [9055 Lottery](#)

108th Lottery Results **27** No. **2746** **0335-28 44** monkeys + **12** dragons **12** The 109th draw will be on Thursday, September 28th [Lottery results](#)

Issue 020: Macao Lottery League single number	Issue 020: Macau gold medal with one lucky number
Issue 020: It is revealed that "One Code of Death" is accurate	Issue 020: Cornucopia [Two special numbers]
Issue 020: Macau Ace ① Xiao ① Code	Issue 020: Macau Gambling King One Number One Number
Issue 020: Macau's hottest ② Xiao ③ code	Issue 020: Macau gambler reveals a code

Case Study: SEO in the Iranian News Network



GPT can label the political bias of Iranian news sites

(in the absence of existing labeled datasets)

- Of 31 labels from previous work, 27 are labeled correctly by GPT
- Webgraph shows assortativity along political alignment given by GPT labels

Alignments:

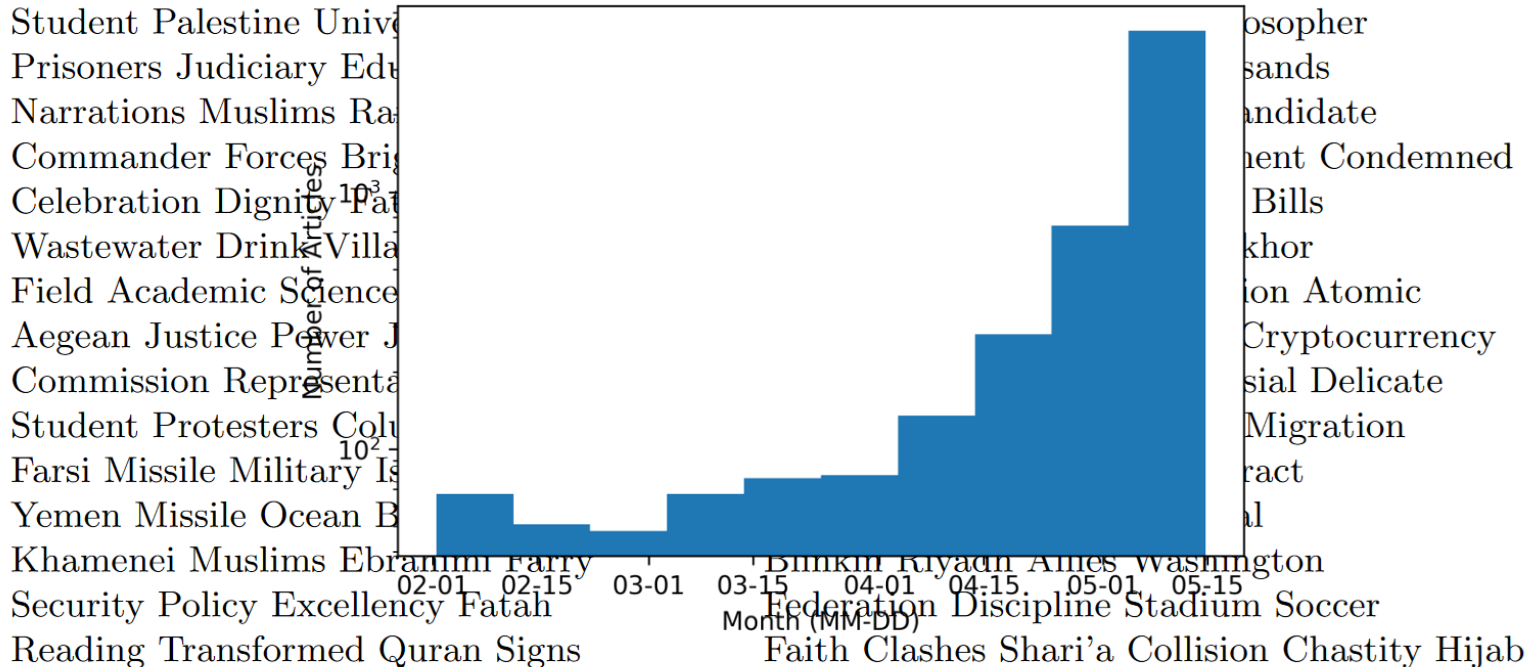
- Conservative (n=150): fundamentalist, pro-government
- Neutral (n=137): highly self-censored news outlets
- Reformist (n=29): “left-wing” movement
- Anti-government (n=17): controversial and largely banned in Iran

Zanconato, A., Sabahi, F.: Iran-media landscape.
European Journalism Centre (2019)

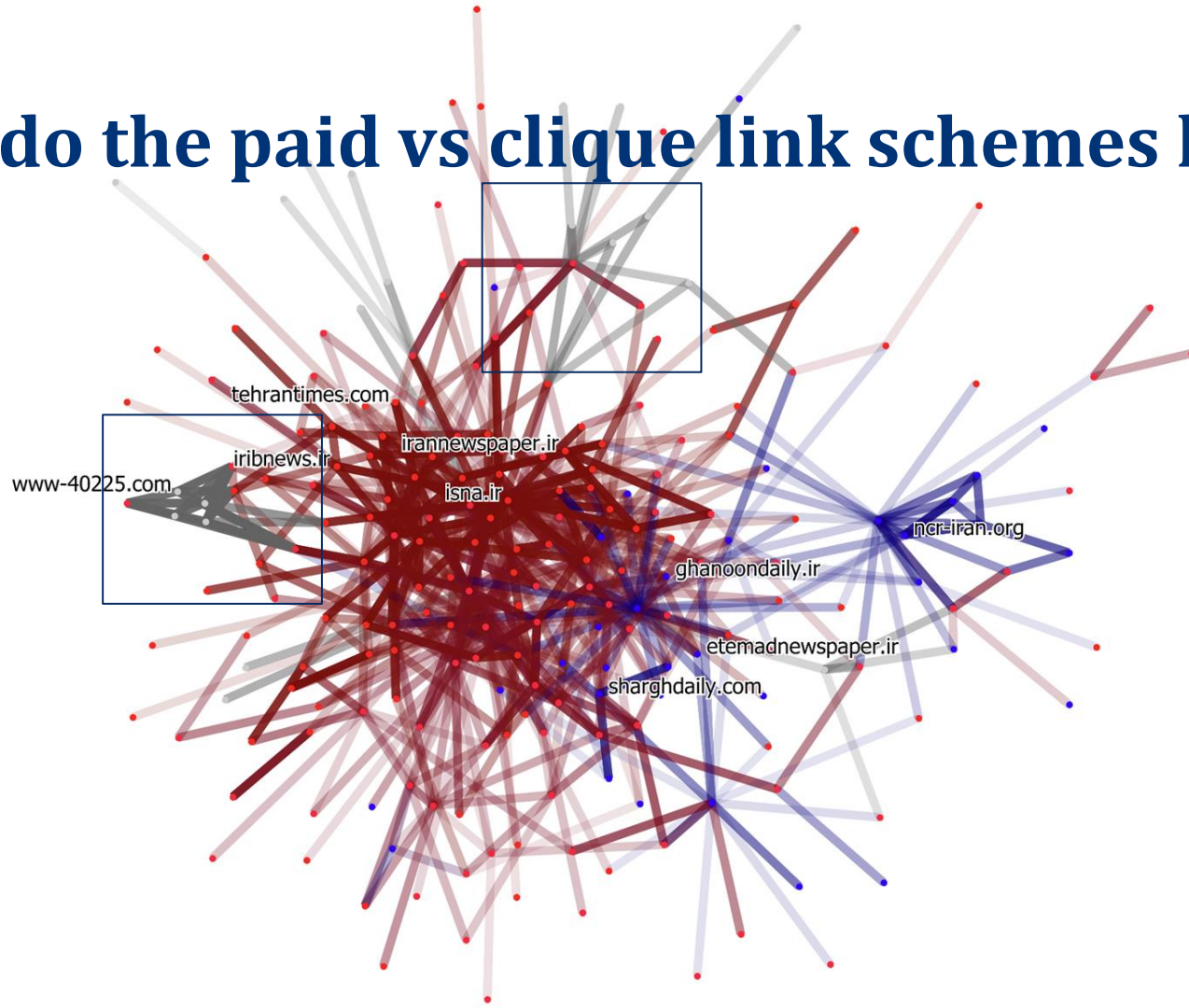
Topics covered tend to have partisan framing (courtesy of google translate)

Conservative Topics (n=150)

Reformist Topics (n=29)
Article Publication Dates



What do the paid vs clique link schemes link to?



Topics linked to by paid schemes (mixed) and the link scheme clique (conservative)

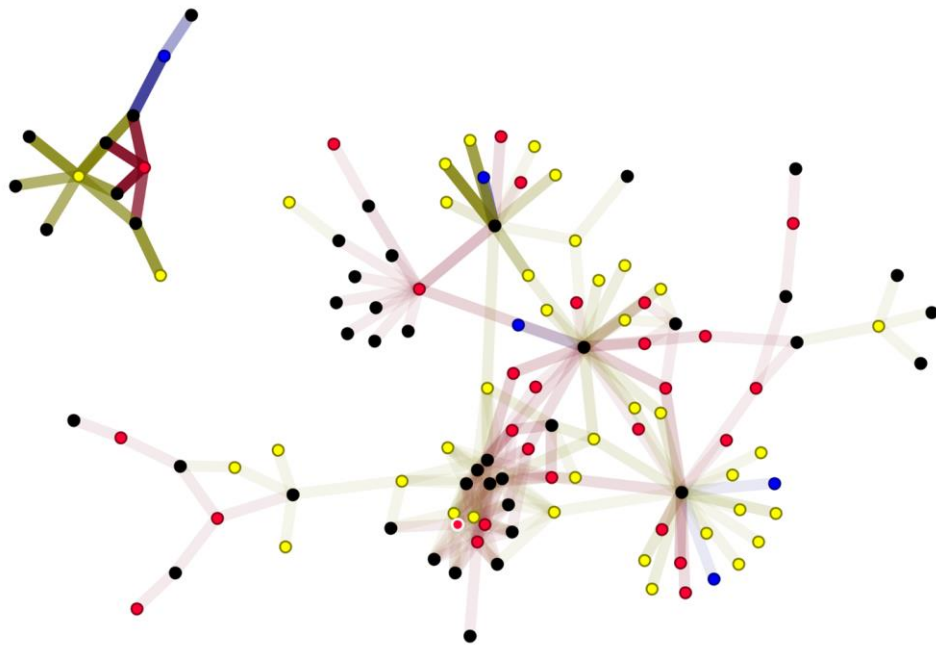
Link Scheme Clique Topics (n=4)

Major-general Military Corps Ballistic
Murder Interrogation Criminal Murderer
Students Protesters Demonstrations Movement
Klein Shias Narrations Innocent
Encouraging Cooperative Revenue Households
Presidency Selected Eleventh Fundamentalists
Rights Livelihood Pension Sunni
Emirates Toman Exchange Banknotes

Multi-Category Link Scheme Topics (n=5)

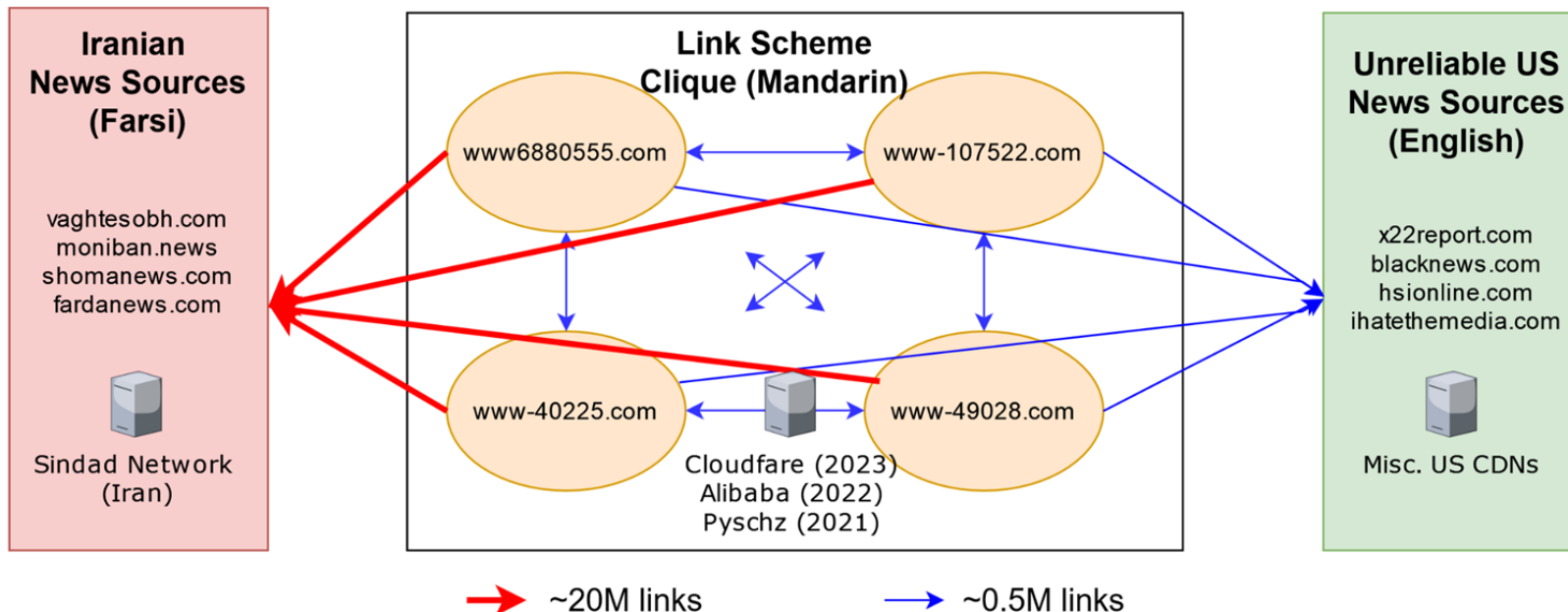
Presidency Selected Eleventh Fundamentalists
Colonel Suspects Judicial Capture
Citizens Asphalt Development Municipality
States Allies Washington Saudi
Income Guilds Declaration Non-commercial
Second Chair Constituency Candidates
Development Economic -operative Participation
Biden Netanyahu Civilians Weapons

Paid schemes link to Iranian News sites from every political alignment



powered by ORA

Clique has unique link distributions



Conclusion: is the link scheme clique paid for or is it part of an information operation?

	Hosting	Camo	# Links	Topics	Webgraph	Outlink Types	Only paid links?
Paid	Joint	No	~10 ¹⁰	Mixed	Mixed	Multi-category	Probably
Clique	Joint	Yes	~20M	Cons.	Cons.	News	Possibly

- Outlier Node/Edge Detection
- Node Prediction
 - Add 'owner' / host nodes
- Network-based Collusion Detection Models
 - Lack of ground truth for evaluation