

SNA Unit 5

SNA YouTube

5.1.1 Introduction

- **Scope:** Hundreds of millions of people upload billions of videos.
 - **Core Goal of SNA on YouTube:** To visualize connected landscapes of videos and users to highlight patterns of producers, commentators, and consumers.
 - **Significance:** Online video sharing has shifted from a solitary, technical task to a mainstream social practice. Popularity is not uniform; different types of content generate different network structures.
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5.1.2 What Is YouTube?

- **History:** Created in 2005; acquired by Google in 2006.
 - **Statistics (as of Oct 2009):**
 - Over **1 billion** videos watched daily.
 - Between **21% and 23%** of all internet users visit YouTube monthly.
 - **24 hours** of video uploaded every minute.
 - **Success Factors:**
 1. **Ease of Use:** Simple uploading and instant playback (no proprietary player installations).
 2. **Strategic Collaborations:** Partners with studios, networks, and political parties.
 3. **Social Integration:** Code embedding allows videos to be shared across blogs, wikis, and social media, driving "viral" growth via electronic word-of-mouth.
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5.1.3 YouTube's Structure

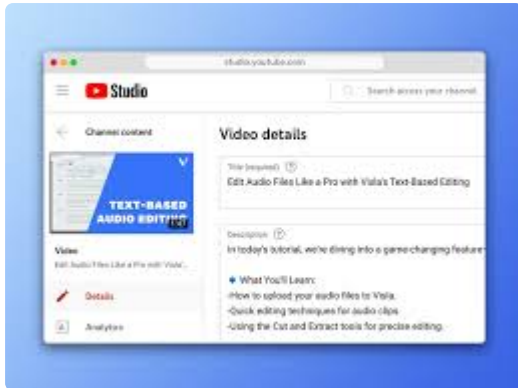
YouTube maintains a clear distinction between **Videos (Content)** and **Users (Community)**, though they are closely linked.

5.1.3.1 Videos

Every video has a standardized page containing:

- **Metadata:** Title, author, description, tags, and category.
- **Statistics:** View counts, ratings, and geographical popularity maps.
- **Interaction Tools:**

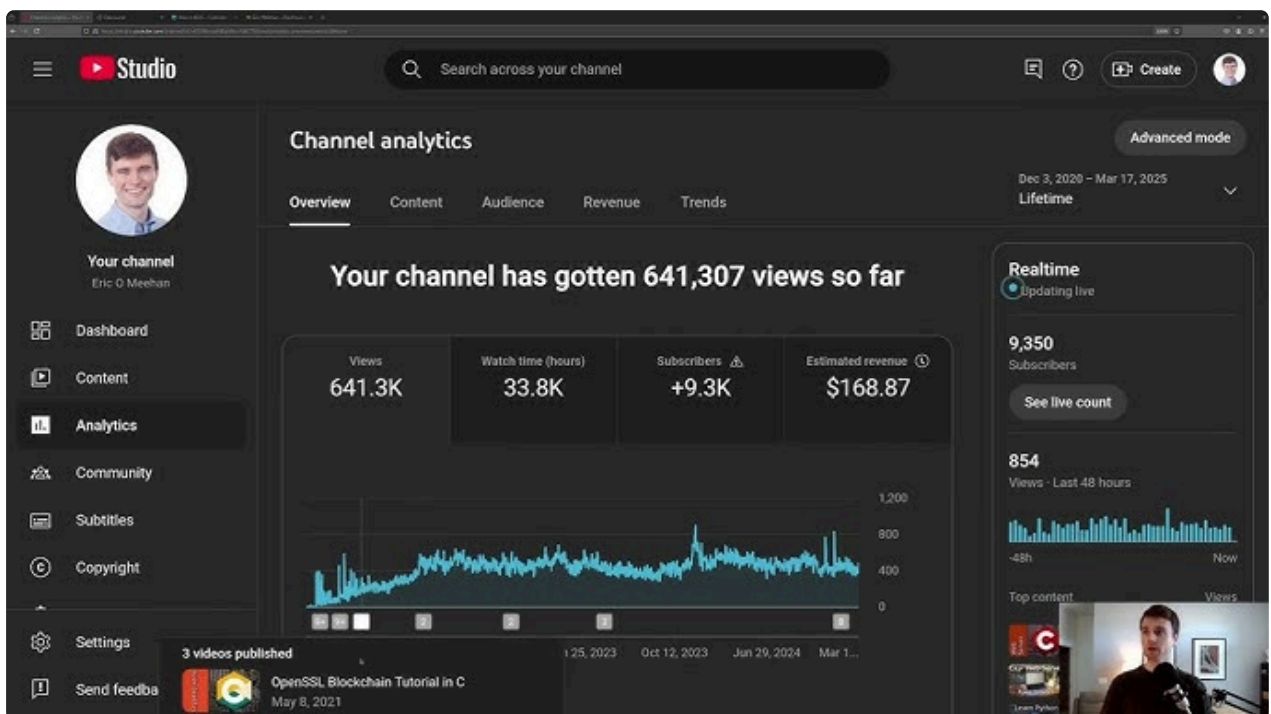
- **Textual Comments:** Can be threaded or flagged as spam.
- **Video Responses:** A video directly linked to the original.
- **Ratings:** Like/Dislike buttons.
- **Related Videos:** Generated by YouTube's algorithm based on commonalities and user paths.



5.1.3.2 Users' Channels

User profiles ("channels") act as hubs for:

- **Personal Info:** Name, age, location, and social media links.
- **Explicit Networks:**
 1. **Subscribers:** Directed, asymmetric ties (following a channel).
 2. **Friends:** Bilateral, symmetric ties (requires mutual approval).
- **Widgets:** Customizable boxes for activity logs, playlists, and "favorited" videos.



5.1.4 Networks in YouTube

5.1.4.1 Video Networks

- **Shared Descriptors:** Edges connect videos sharing the same tags or categories.
- **Video Responses:** Direct links between a response video and the source.
- **Comment Networks:** Edges connect videos commented on by the same user.

5.1.4.2 Users' Networks

- **Explicit:** Subscription and friendship lists.
 - **Implicit:** Created via interactions like commenting on a channel profile, rating, or favoriting.
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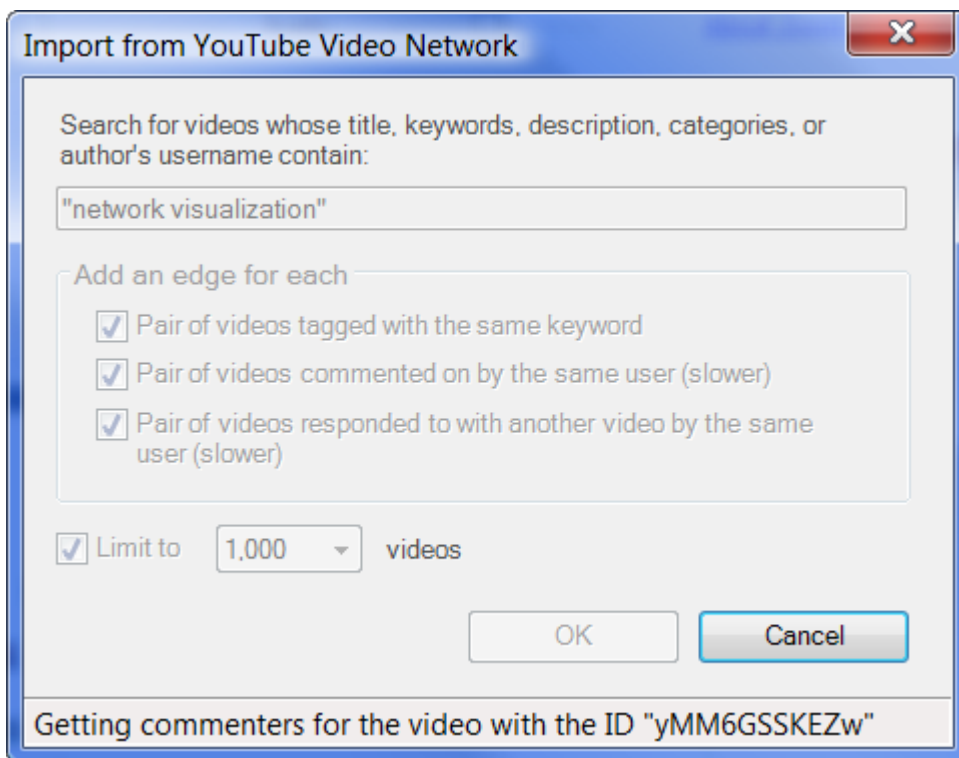
5.1.5 Key Analytical Questions

- **Centrality:** Which videos/users lead a category? Who are the "rising stars"?
 - **Groups:** Do videos form dense hubs based on niche interests (e.g., Japanese anime, makeup)?
 - **Temporal:** How does a viral video disrupt or reinforce existing networks?
 - **Structural:** What are the differences between a user's subscription network (fans) and friendship network (peers)?
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5.1.6 Importing YouTube Data into NodeXL

5.1.6.1 Video Data

- **Import Method:** Search by keywords (e.g., "makeup").
- **Edge Types:** Tags, shared commenters, or video responses.
- **Limitation:** Searches titles/metadata, but not the actual audio/video content.



5.1.6.2 User Data

- **Import Method:** Search by exact channel name.
- **Levels:**
 - **1.0:** Direct neighbors.
 - **1.5:** Direct neighbors and the ties *between* them.
 - **2.0:** Includes friends-of-friends.

5.1.6.3 - 5.1.6.4 Technical & Ethical Issues

- **Privacy:** If a user marks lists as private, NodeXL cannot retrieve them.
- **API Reliability:** Web requests may time out, leading to inconsistent data.
- **Ethics:** Researchers must handle personally identifiable info (faces + names + opinions) with care to avoid embarrassment or disclosure of sensitive data.

5.1.8 Case Studies: Analyzing YouTube Networks

5.1.8.1 User Networks: Celebrity vs. Community

The text compares two different types of prominence:

1. **Rihanna (Celebrity):** * **Structure:** A "star" network.
 - **Metrics:** Extremely sparse (**Density: 0.008**).
 - **Behavior:** The channel is a promotional showcase; fans connect to Rihanna but not to each other.

2. Leesha Harvey (Folk Singer):

- **Structure:** A cohesive community.
- **Metrics:** High density (**0.166**).
- **Behavior:** Features multiple hubs of mutual friends and folk-genre enthusiasts who support one another.

5.1.8.3 The "Makeup" Video Network

- **Finding:** shared-tag networks are very dense. Filtering by **Edge Weight** (frequency of shared tags) is necessary to see patterns.
- **Boundary Objects:** The "Natural makeup" video had the highest **Betweenness Centrality**. It acted as a "bridge" between everyday makeup users and theatrical/alternative makeup communities.
- **Note:** The most *central* videos (pivotal to the community) were not necessarily the most *popular* (most viewed) in the global YouTube population.

5.1.8.4 Healthcare Reform Networks

- **Controversy vs. Popularity:** High comment counts did not correlate with high ratings. Controversial videos sparked "heated discussions" but received lower ratings from dissenters.
- **Central Players:** Satirical news (e.g., *The Young Turks*) and snippets of politicians (e.g., Mike Rogers) generated more prolonged and lively discussion than informational or personal vlogs.

5.1.9 - 5.1.10 Summary & Agenda

- **Practitioners:** SNA helps gauge public trends and decide which "creative routes" maximize outcome while avoiding backlash.
- **Researchers:** YouTube research is in early stages compared to Twitter/Facebook. The key is the **interplay between content and structure**—how the web of social ties determines what becomes popular.

Exam Tip: Be prepared to define **Boundary Objects** and explain why **Rihanna's** network is a "star" structure (low density) while a niche community like **folk music** has high density.

Wiki Networks

Connections of Creativity and Collaboration

5.2.1 Introduction to Wikis

- **Definition:** A wiki is a website that allows any user to edit content, where every modification is recorded and archived.
 - **Origin:** Invented by **Ward Cunningham** in 1995 (**WikiWikiWeb**). "Wiki" means "quick" in Hawaiian.
 - **Significance:** Wikis challenge traditional notions of authority and expertise by enabling massive collaborative knowledge construction (e.g., Wikipedia).
 - **Use Cases:** Knowledge repositories for companies, lesson plans for teachers (Classroom 2.0), medical information sharing, and fan communities (Lostpedia).
 - **Technical Nature:** Wikis are one of the most demanding social media systems to analyze due to large data volumes, complex page types, and various interaction modes.
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5.2.2 Key Features of Wiki Systems

Wikis (specifically those using **MediaWiki** software) have several structural pillars:

- **History:** The "iceberg" of activity. Every edit records the editor, time, description (summary), and specific changes.
- **Namespaces:** Organizational categories that separate different types of work:
 - **Main/Article:** The actual encyclopedic or topical content.
 - **Talk/Discussion:** Threaded spaces for editors to coordinate edits and resolve disputes without affecting the article content.
 - **User:** Personal pages for registered contributors.
 - **User Talk:** Pages for direct user-to-user communication.
 - **Wikipedia/Project:** Policy debates and community governance.
- **Everything is a Page:** Collaborative tasks are not just for articles; policies, categories, and templates are all pages that evolve through community edits.
- **User Accounts:** While anonymous editing is often allowed, accounts allow for the tracking of "User Contributions" and the building of reputation.

WIKIPEDIA
The Free Encyclopedia

[Create account](#)

Octopus

Article [Talk](#)

From Wikipedia, the free encyclopedia

This article is about the order of cephalopod. For other uses, see [Octopus \(disambiguation\)](#).

An **octopus** (pl.: **octopuses** or **octopodes**, see below for variants) is a soft-bodied, eight-limbed mollusc of the order **Ceetopoda** (/tɒkˈtɒpədə/, *ok-TOP-ə-də*^[*]). The order consists of some 300 *species* and is grouped within the class *Cephalopoda* with squids, cuttlefish, and nautiloids. Like other cephalopods, an octopus is *bilaterally symmetric* with two eyes and a *beaked* mouth at the center point of the eight limbs.^[*] The soft body can radically alter its shape, enabling octopuses to squeeze through small gaps. They trail their eight appendages behind them as they swim. The *siphon* is used both for *respiration* and for *locomotion*, by expelling a jet of water. Octopuses have a complex nervous system and excellent sight, and are among the most intelligent and behaviourally diverse of all *invertebrates*.

Octopuses inhabit various regions of the *ocean*, including *coral reefs*, *pelagic* waters, and the *seabed*; some live in the *intertidal zone* and others at *abyssal depths*. Most species grow quickly, mature early, and are short-lived. In most species, the male uses a specially adapted arm to deliver a bundle of sperm directly into the female's mantle cavity, after which he becomes *senescent* and dies, while the female deposits fertilised eggs in a den and cares for them until they hatch, after which she also dies. Strategies to defend themselves against predators include the expulsion of *ink*, the use of *camouflage* and *threat displays*, the ability to jet quickly through the water and hide, and even *deceit*. All octopuses are *venomous*, but only the *blue-ringed octopuses* are known to be deadly to humans.

Octopuses appear in mythology as sea monsters like the *Kraken* of Norway and the *Akkorokamui* of the *Ainu*, and probably the *Gorgon* of ancient Greece. A battle with an octopus appears in *Victor Hugo's* book *Toilers of the Sea*, inspiring other works such as *Ian Fleming's* *Octopussy*. Octopuses appear in Japanese erotic art, *shunga*. They are eaten and considered a *delicacy* by humans in many parts of the world, especially the *Mediterranean* and the Asian seas.

Etymology and pluralisation

See also: [Plural form of words ending in -us](#)

The scientific Latin term *octopus* was derived from *Ancient Greek* ὀκτώπους, a compound form of ὀκτώ (*októ*, "eight") and πούς (*pous*, "foot"), itself a variant form of ὀκτώπους, a word used for example by *Alexander of Tralles* (c. 525–c. 605) for the common octopus.^[*]^[*] The standard pluralised form of "octopus" in English is "octopuses",^[*] the *Ancient Greek* plural ὀκτώποδες, "octopodes" (/tɒkˈtɒpədiz/), has also been used historically.^[*] The alternative plural "*octopi*" is considered grammatically incorrect because it *wrongly assumes* that *octopus* is a *Latin second declension* "-us" noun or adjective when, in either Greek or Latin, it is a *third declension* noun.^[*]^[*] Historically, the first plural to commonly appear in English language sources, in the early 19th century, is the *latinate* form "octopi",^[*] followed by the English form "octopuses" in the latter half of the same century. The Hellenic plural is roughly contemporary in usage, although it is also the rarest.^[*]

105 languages
Read [View source](#) [View history](#)

Octopus

Temporal range:
Middle Jurassic – recent

Common octopus
(*Octopus vulgaris*)

Scientific classification

Kingdom: Animalia
Phylum: Mollusca
Class: Cephalopoda
(unranked): Neocoleoidea
Clade: Vampyropoda
Superorder: Octopodiformes
Order: **Octopoda**
Leach, 1818^[*]

Suborders

(traditional)

- Cirina
- Incirina

See § *Evolution for families*

Synonyms

- Octopoda
Leach, 1817^[*]

Article [Discussion](#)

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Revision history of Educational technology

From Wikipedia, the free encyclopedia

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From year (and earlier): From month (and earlier): Tag filter: Deleted only [Go](#)

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(cur) = difference from current version, (prev) = difference from preceding version, m = minor edit, -- = section edit, -- = automatic edit summary

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- [\(cur | prev\)](#) 05:02, 21 June 2010 [Tommy2010](#) (talk | contribs) m (27,039 bytes) (*Reverted edits by 121.54.32.148 (talk) to last revision by 194.170.32.253 (HG)*) ([undo](#))
- [\(cur | prev\)](#) 05:00, 21 June 2010 [121.54.32.148](#) (talk) (27,888 bytes) (*—Explanation and meaning*) ([undo](#)) ([Tag: repeating characters](#))
- [\(cur | prev\)](#) 04:58, 17 June 2010 [194.170.32.253](#) (talk) (27,039 bytes) ([undo](#))
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- [\(cur | prev\)](#) 21:41, 13 June 2010 [96.255.250.34](#) (talk) (27,189 bytes) (*—Further reading*) ([undo](#))
- [\(cur | prev\)](#) 21:34, 13 June 2010 [96.255.250.34](#) (talk) (26,980 bytes) (*—Theorists*) ([undo](#))
- [\(cur | prev\)](#) 20:00, 3 June 2010 [Carmacell26](#) (talk | contribs) (26,560 bytes) ([undo](#))
- [\(cur | prev\)](#) 19:58, 3 June 2010 [Carmacell26](#) (talk | contribs) (27,048 bytes) (*added a simpler definition*) ([undo](#))
- [\(cur | prev\)](#) 06:53, 7 June 2010 [Eikevoo](#) (talk | contribs) (26,959 bytes) (*Revert to the revision prior to revision 360720761 dated 2010-06-02 22:24:51 by 131.107.0.78 using [[w:en:]]*) ([undo](#))

5.2.3 Wiki Networks from Edit Activity

Translating wiki activity into a network graph requires defining vertices, edges, and attributes:

5.2.3.1 Defining the Network Components

- **What is a Vertex?** Usually an individual User ID. It can also be a Page or a Category if studying content relationships.
- **What counts as an Edge?**

- **User Talk Edits:** Editor A edits User B's talk page (direct communication).
- **Article Talk Replies:** Editor A replies to Editor B in a discussion thread.
- **Co-editing:** Two users edit the same page (shared interest/attention).
- **What Attributes matter?** Proportion of "minor" edits (grammar) vs. "major" edits (content), total edit volume in bytes, and specific topics of interest.

Table: Primary Wiki Network Types

Network Type	Vertices	Edge Definition
Page Link	Pages	Hyperlinks between pages
User Talk	Users	Comments on another user's profile
User Discussion	Users	Replies on an Article Talk page
Affiliation (Bimodal)	Pages & Users	User edits per page
User Co-edit	Users	Users who have edited the same pages

5.2.4 & 5.2.5 Identifying Social Roles (Project Castle Case Study)

This study used data from the **Empire Wiki** to identify different types of editors based on their network signatures.

5.2.4.1 Social Roles and Subgraph Analysis

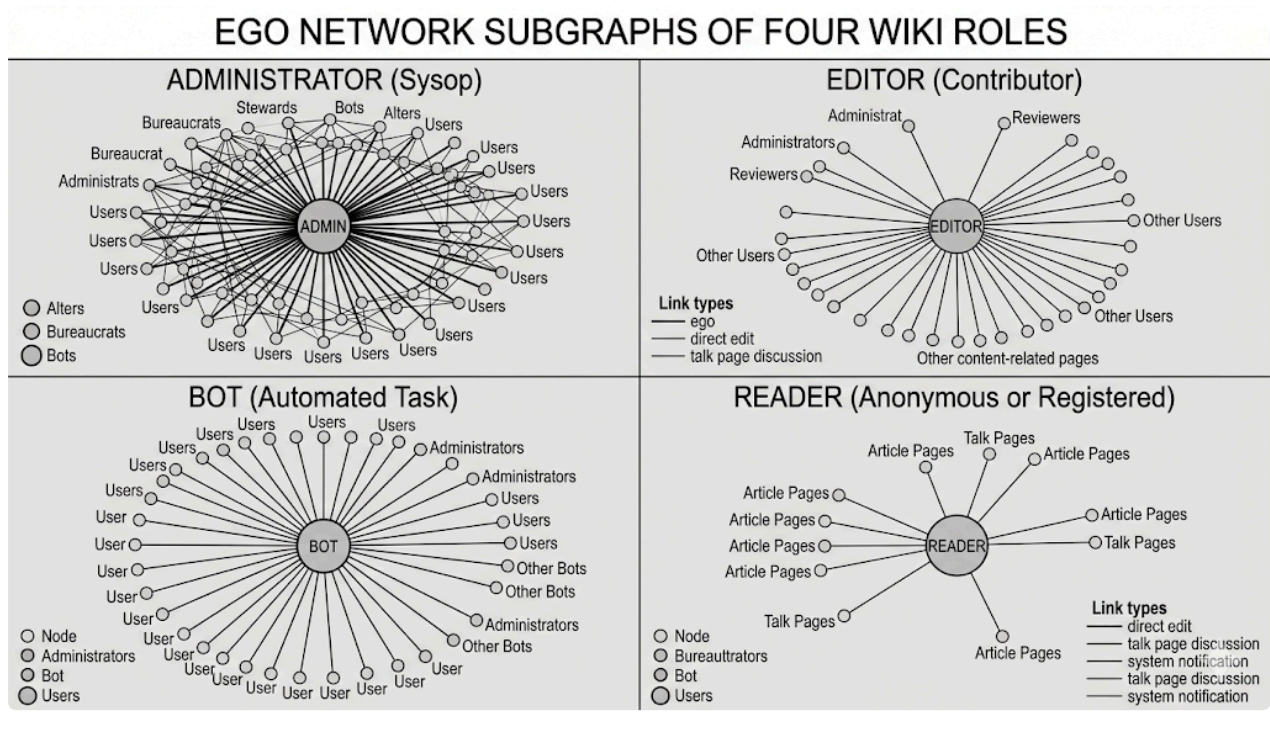
By creating **1.5-degree ego networks** (the user and their neighbors, plus connections between those neighbors), researchers identified four distinct types of participants:

1. **Type 1 Sysop (Administrator): * Network Role:** The "public face" of administration.
 - **Structure:** High degree of ties to users who are *not* connected to each other.
 - **Function:** Bridges the "outer ring" (general community) to the "inner core" (senior staff).
2. **Type 2 Sysop (Senior Administrator):**
 - **Network Role:** Internal coordination.
 - **Structure:** Smaller number of overall ties, but those neighbors are densely interconnected.
 - **Function:** Embedded in a tight core of other senior admins; less direct community interaction.
3. **Active Participant (Substantive Expert):**

- **Structure:** High project-specific edits but very low overall network ties.
- **Behavior:** Works autonomously on specific content without much general community integration.

4. Inactive Participant:

- **Structure:** Well-embedded in the general network but uninvolved in the specific project (e.g., Project Castle).



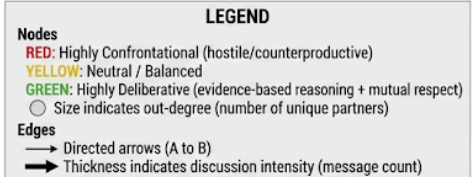
5.2.6 Deliberation in Article Talk Pages

This example explores the quality of discussion and how "structural signatures" identify helpful vs. harmful contributors.

- **Metric:** Deliberation quality (evidence-based reasoning + mutual respect).
- **Stoplight Visualization (NodeXL):**
 - **Green:** Highly deliberative/collaborative.
 - **Red:** Confrontational (hostile/counterproductive).
 - **Yellow:** Neutral or balanced.
- **Findings:** * **Confrontational users** often have the highest **out-degree** (talking at many people) and form the most intense (thickest) dyadic ties.
 - **Deliberative users** tend to have fewer partners and act as mediators to diffuse hostility.

TALK PAGE CONNECTIONS DEPICTING DELIBERATION LEVELS

NETWORK OF ARTICLE TALK PAGE DISCUSSIONS. DELIBERATION QUALITY IS CODED VIA NODE COLORS. CONFRONTATIONAL BEHAVIORS HAVE HIGH OUT-DEGREE AND INTENSE CONNECTIONS. DELIBERATIVE BEHAVIORS ARE CHARACTERIZED BY MEDIATING ROLES.



CONFRONTATIONAL CLUSTER (High Tension)

Few green nodes, intense conflicts, highest out-degree

Few green nodes, intense conflicts, highest out-degree

DELIBERATIVE CLUSTER (Cooperation)

Acting as mediator to diffuse hostility, higher internal interconnectedness

NEUTRAL ZONE
Lower intensity, standard coordination

Figure 5.2.12: Talk page connections depicting deliberation levels in a wiki article discussion, using a Stoplight visualization of node-coded deliberation quality.

5.2.7 Large-Scale Structure (Lostpedia Case Study)

Lostpedia (fan wiki for the show *Lost*) was used to demonstrate how to map hundreds of thousands of edits.

5.2.7.1 Page-to-Page Co-edit Networks

- **Logic:** A link exists between Page X and Page Y if a significant number of people edited both.
- **Insight:** Found a clear cluster of "Theorists" who edit "Theory" pages almost exclusively, separate from those who edit "Article" or "Discussion" pages.

5.2.7.3 Normalization of Data

- **The Problem:** Power editors (like the example "Santa") edit so many pages that they connect to everyone, creating a "hairball" graph.
- **The Solution:** Use percentages instead of raw counts.
- **Formula:** .
- **Result:** A higher threshold (e.g., minimum 30% shared interest) reveals the most significant relationships and the true "backbone" of the community.

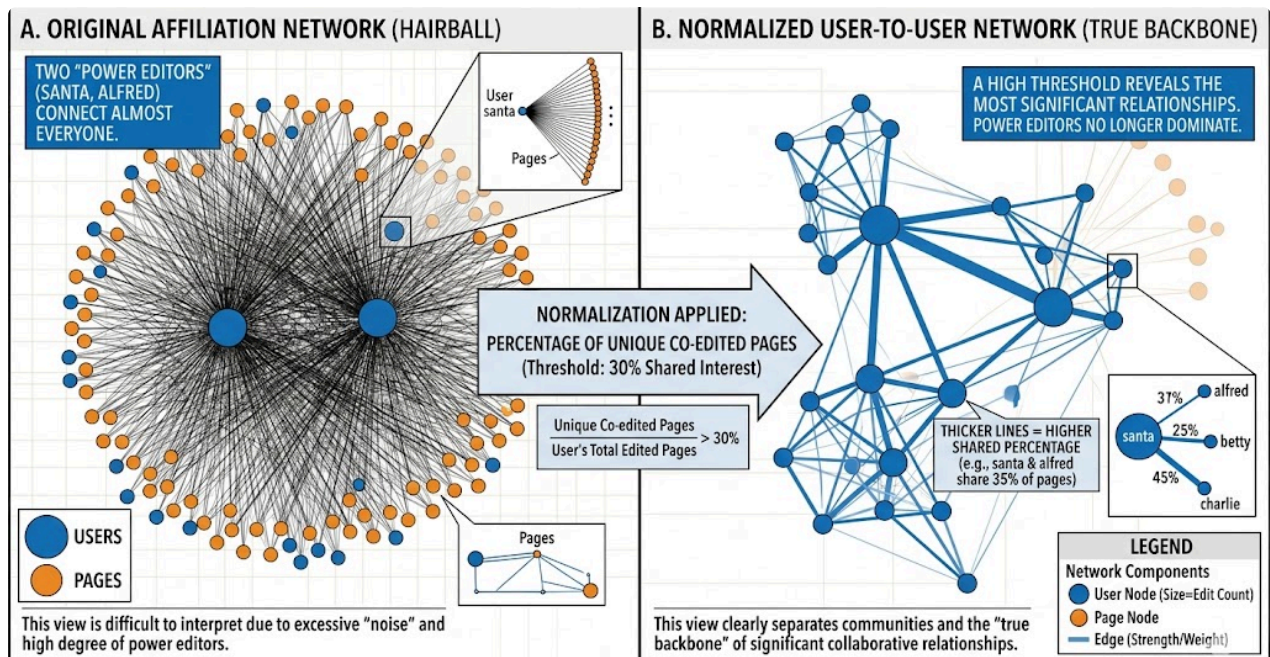


Figure 5.2.16: Normalized user-to-user affiliation network, showing the transition from a noisy hairball to a clear structural backbone.

5.2.8 - 5.2.10 Summary for Practitioners and Researchers

- **For Practitioners:** Wiki analysis is "advanced" because there are no automatic spigots for everything. You must "roll your own" data via web scraping or SQL parsing. Success depends on narrowing the sampling frame (focusing on a specific project or time period).
- **For Researchers:** Wikis are the best settings to study the **diffusion of norms** and the **dynamics of cooperation** because the temporal history is perfectly preserved.
- **The "Everything is an Edit" Rule:** In wikis, communication *is* editing. There is no separate message system; coordination happens through the content creation tools themselves.

Links:

[SNA Unit 1](#)

[SNA Unit 2](#)

[SNA Unit 3](#)

[SNA Unit 4](#)

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