



# laetus in praesens

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16 April 2018 | Draft

## 30 Questions that Facebook has yet to Answer

### Gaps in the testimony of Mark Zuckerberg at a US Senate hearing?

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Prepared in the light of the Joint Hearing of the US [Commerce, Science and Transportation Committee](#) with the [Senate Judiciary Committee](#) entitled "Facebook, Social Media Privacy, and the Use and Abuse of Data" (Washington DC, 10 April 2018). followed by a hearing before the [House Energy and Commerce Committee](#)

## Questions

The following questions can be considered in the light of widely disseminated video coverage of the hearings, a [transcript](#), and the extensive range of commentaries made about the process (see [References](#)). It is noteworthy, for example, that many of those represented at the hearings admitted to being Facebook users and had received campaign funds from Facebook (as well as other tech companies). The hearings had been primarily triggered by controversy aroused by alleged [Russian interference in the US presidential elections of 2016](#) and by the role of [Cambridge Analytica in the misuse of Facebook data](#) on 87 million people. Concerns were also expressed regarding unforeseen misuse of Facebook by the campaigns of US presidential candidates (*Barack Obama on social media*; *Donald Trump on social media*).

1. In placing considerable emphasis on the **voluntary consent of users**, to what extent is the process of giving consent (or withdrawing it) comprehensible, transparent, and freely made:
  - in the light of the relative complexity of the interface in making choices, reinforced by assumptions by techy elites regarding the proportion who comprehend the options and their implications?
  - for those variously challenged: the young, the elderly, the physically or mentally disadvantaged, the relatively illiterate, and the intimidated -- in contrast to discriminatory assumptions about the competence of the "average lay person"?
  - for the inherently gullible and those extremely responsive to peer group pressure?
  - for those subject to religious strictures (Christian [canon law](#), Islamic [Sharia](#) law, Jewish [Halakha](#), and the like)?
2. To what extent do issues relating to use of the Facebook interface in enabling popular consent (or its negation) echo those of **democratic voting**, notably with respect to:
  - reliability of the platform in the face of possible abuse (hacking, etc) and denials of such vulnerability despite widespread claims of electoral fraud?
  - certification of identity, the possibility of identity theft, and related abuses?
  - issues of access, whether physically, electronically or financially -- notably by the variously disadvantaged?
  - peer pressure in voting, notably in the case of the gullible and those subject to other constraints?
  - possible future use of Facebook as a substitute or complement to democratic voting systems -- at least in some places under some conditions-- given the voting techniques already available via that platform?
3. To what extent is there increasing **obligation to participate** in such systems, despite their complexities and vulnerabilities:
  - as in the requirement for bank accounts and online banking (notably in the case of the homeless, in order to receive social security payments)?
  - as in the legal requirement to vote in some countries?
4. Given the emphasis on **invasion of privacy** and **non-consensual use** of personal data:
  - how long is data stored in reality and where, after people have endeavoured to opt out?
  - given the many indications to the contrary, is such information really deleted in practice rather than archived somewhere?
5. Is it probable that **non-participants** in Facebook may come to be variously flagged through analysis of the pattern of Facebook friends and their contacts, in the light of:

- indications regarding the role of [shadow profiles](#) maintained by Facebook (*Shadow profiles are the biggest flaw in Facebook's privacy defense*, *TimeTraveller*, 18 April 2018; (*Facebook says it tracks non-users but doesn't 'sell people's data'*, *RT*, 18 April 2018)
  - will people come to be penalized for not having a Facebook account (following the precedent of vehicle insurance) -- possibly with the argument that they presumably had "something to hide"?
  - as a "person of interest" through security screening, visa processing, and failure to take a traceable mobile phone to political meetings (Richard Sennett and Saskia Sassen, *The War on Shapeless Terror*, *The Guardian*, 20 August 2007)?
  - in CV dissemination and personnel selection?
  - as an indication of potentially suspect alienation from behaviour framed as socially normal (if not necessary)?
  - why do some choose not to participate or to delete their Facebook accounts?
6. Given the provocation in the US associated with [interference in US elections by foreign powers](#) (and its functional equivalents, whatever form these may take), are distinctions appropriately framed or ignored between:
- [Russian intervention](#) (2016), pejoratively framed in terms of enabling a "troll factory" (*It looks like Russia hired internet trolls to pose as pro-Trump Americans*, *Business Insider*, 27 July 2016). See also *Russia Election Hacking: Countries Where the Kremlin Has Allegedly Sought to Sway Votes* (*Newsweek*, 5 September 2017)?
  - [Ukraine intervention](#) (2016)?
  - UK intervention in 2016, euphemistically framed as "misuse of data", by [Alexandr Kogan](#), enabled via Cambridge Analytica as a subsidiary of [Strategic Communication Laboratories](#), variously connected to the governing Conservative Party (Liam O'Hare, *SCL -- a Very British Coup*, *Bella Caledonia*, 20 March 2018)?
  - as variously indicated by *Wikipedia* (2012 election, [Israel](#); 1996 election, [China](#); 1984 election, [USSR](#); 1980 election, [Iran](#); 1968 election, [South Vietnam](#); 1960 election, [USSR](#); 1940 election, [Nazi Germany](#); 1940 elections, [UK](#))?
  - Israel intervention, as variously indicated (Robert Parry, *Israel Has Interfered More in U.S. Politics Than Russia, but Don't Expect a Probe of Israelgate*, *TruthDig*, 27 April 2017; Oliver Stone, *Israel Had Far More Involvement in the US Election Than Russia*, *RedState*, 14 June 2017; Philip Weiss, *Israel interferes in our politics all the time, and it's never a scandal*, *Mondoweiss*, 15 February 2017)?
  - Vatican intervention: *Why Is the Pope Meddling in American Politics?* (*The Trumpet*, May 2016); *Foreign Political Interference...Vatican Style* (*The Humanist*, July/August 1997)?
  - Funding of US lobbies by foreign powers and interest groups?
7. Given the lack of provocation in the US associated with [interference by the US in foreign elections](#) (and its functional equivalents, whatever form these may take), are distinctions appropriately framed or ignored between the following:
- as variously indicated by *Wikipedia* ([Bolivian election](#), 2002); [Chilean elections](#), 1970, 1964; [Iranian election](#), 1952; [Italian election](#), 1948; [Israeli election](#), 2015; [Japanese elections](#), 1950s-1960s; [Korean election](#), 1948; [Palestinian election](#), 2006; [Philippines election](#), 1953; [Russian election](#), 1996); such references necessarily exclude undocumented interference, notably those justified in terms of national security?
  - otherwise recognized as common practice, as documented by Dov H. Levin (*Sure, the U.S. and Russia often meddle in foreign elections. Does it matter?* *The Washington Post*, 7 September 2016), noting that US and USSR/Russia intervened in 117 elections around the world from 1946 to 2000 -- an average of once in every nine competitive elections (*PEIG: Partisan Electoral Interventions by the Great Powers*). See also: C.J. Polychroniou (*Noam Chomsky on the Long History of US Meddling in Foreign Elections*, *TruthOut*, 19 January 2017); Martin Williams (*America's long history of meddling in other countries. elections*, *Channel 4 Fact Check*, 23 Nov 2017); Ishaan Tharoor (*The long history of the U.S. interfering with elections elsewhere*, *The Washington Post*, 13 October 2016); Stephen Kinzer (*We've been hacking elections for more than a century*, *Boston Globe*, 8 January 2018); W. E. Messamore (*10 Times The U.S. "Hacked" Foreign Elections and Democracies*, *Foreign Policy*, 22 December 2016); Edmondo Burr (*US Interfered In Foreign Elections 81 Times In 54 Years*, *YourNewsWire*, 26 December 2016)?
  - widespread use of wiretapping of foreign entities, in anticipation of strategic decisions and elections (*Alleged Breach of UN Treaty Obligations by US*, 2010)?
  - the implicit propaganda role of Facebook as a modern form of [Voice of America](#)?
8. Given that Facebook links 2.2 billion monthly active users globally (with only a percentage in the US), to what extent is Facebook complicit in **use of its platform by non-US entities to interfere in the electoral process of other countries**?
9. Given the **undeclared role of secrecy** during the public hearing, to what extent was the testimony especially "circumspect" (namely far less than transparent) through being subject to:
- government representatives necessarily obliged to avoid issues revealing security provisions -- with questions that representatives were effectively "afraid to ask"?
  - Facebook necessarily obliged (as a for-profit corporation) to avoid revealing measures which give it a competitive advantage -- or the extent to which it was constrained by government security injunctions (non-disclosure agreements, etc)?
10. Is there every probability that Facebook is unwittingly complicit in some **undeclared agendas** which it is necessarily required to deny:
- in the light of the well-documented practice of inserting "[backdoors](#)" into computer hardware and software in conformity with national security requirements?

- given the role of [dual-use technologies](#), understood in this context as their undocumented use to gather information and integrate information from undeclared sources, CCTV coverage, smartphones and voice commanded TV, as separately discussed (*Naive Acquisition of Dual-use Surveillance Technology*, 2015)?
  - in anticipation of future requirements US Immigration and Customs Enforcement and *Department Of Homeland Security Compiling Database Of Journalists And 'Media Influencers'* (*Forbes*, 6 April 2018)?
11. To what extent should Facebook be recognized as operating as a **proxy of US security services** (knowingly or unknowingly), given the timeline of the emergence of Facebook in 2004 (as with the Google IPO in 2004) in the light of:
- the [Total Information Awareness](#) program of the [US Information Awareness Office](#) that began in 2003, was subsequently renamed as Terrorism Information Awareness, then defunded by Congress in 2003 following public criticism that the development and deployment of this technology could potentially lead to a mass surveillance system; however, several IAO projects continued to be funded and run under different names?
  - in the light of the argument that social networks such as Facebook, Google+, Twitter, and YouTube are reaching more than 1 billion people worldwide 24/7 in their workplaces, schools, homes, and even on the go with their mobile devices. The social networks are leading the way toward towards Total Information Awareness (Newton Lee, *Facebook Nation: Total Information Awareness*, 2014, p. 7)?
  - the probability that user (shadow) profiles are secretly and seamlessly augmented by security services, given their own very extensive data gathering facilities and resources -- and the anecdotal information provided during the hearing regarding inexplicable display of Facebook ads following conversations on a related topic?
  - providing a remarkable means to enhance the capacity for [face recognition](#) and [facial profiling](#) for purposes to which users have not given their consent (*Facebook facial recognition faces class-action suit*, *BBC News*, 17 April 2018; *Facebook seeks facial recognition consent in EU and Canada*, *BBC News*, 18 April 2018)?
  - a comparison made with the notorious role of the FBI (Benny Evangelista, *Illinois Congressman compares Mark Zuckerberg to J. Edgar Hoover*, *SFGate*, 11 April 2018; Olivia Beavers, *Dem compares Facebook data collection to FBI surveillance on civil rights activists*, *The Hill*, 11 April 2018)?
12. However unwelcome, how is the **right to harass** and pester through advertising via Facebook now recognized according to the legislation of different countries, and how is this to be distinguished from issues currently raised by sexual harassment?
13. Despite the concern of many with the **cyberbullying**:
- why was so little reference made to it during the hearing?
  - how is it to be distinguished from the right of advertisers to harass -- especially if recipients perceive it as bullying (as may be the experienced of the vulnerable exposed to telemarketing)?
14. Given the emphasis in the hearing on the **avoidance of harm**:
- does frequent framing of users as "targets" by Facebook, and the "targetting" campaigns of its advertising clientele, call into question the benign intent claimed (*Enhancing Sustainable Development Strategies through Avoidance of Military Metaphors*, 1998)?
  - is it OK to "target", or does use of "target" in any way recall the massacre of the buffalo (especially since the users are readily framed as "browsers")?
  - is harm to be understood as being in the eyes of those sensitive to it, or in the eyes of those denying the harmful nature of their actions (as highlighted in the case of sexual harassment)
    - is the harm claimed by those targeted by such initiatives necessarily to be denied, especially harm claimed by those outside the US?
    - are initiatives from within the US necessarily to be framed as harmless in contrast with initiatives by those outside the US ?
  - who can detect and report abuse, and who assesses appropriate response to any such claim?
  - whose claims will be heard and acted upon -- and with what delay?
  - can claims be "ranked up" in response to appropriate payment, in a manner consistent with the advertising model and patterns of negative advertising -- if not, why not, and how could it be proven that this modality was not an option?
15. How questionable is the role of the community of users (as repeatedly emphasized in the testimony) whose reporting of abusive content is claimed to be the key to Facebook **self-regulation** , in the light of:
- apparent lack of transparency in the process?
  - the questionable efficacy of self-certification?
  - the challenge for a reviewer of reviewing content that is personally distasteful (as with the claims of another faith)?
  - claims of bias in the criteria for the removal of content, resulting in erroneous removal of non-abusive content?
  - time taken to remove content reported as abusive, notably evident in the contrast drawn during the hearing between the very rapid removal of terrorist-related content and the inability to remove advertising for fatal opioids in a timely manner?
16. Given the considerable emphasis in the hearing on blocking **hate and discriminatory speech**:
- will the difficulty of defining "hate" prove to be as great as the historical difficulty for the United Nations of defining ["aggression"](#) (*United Nations and the Definition of Aggression; Aggression in International Law*)?
  - how is what needs to be blocked to be distinguished from frequent references by those in leadership positions to the essentially "evil" nature of their opponents, whether in opposing political parties, in foreign countries, or associated with

- other faiths (*Questionable reframing of evil*, 2015; *Framing by others of claimants of evil as evil*, 2016)?
- how are mutually challenging statements made by representatives to the UN Security Council to be reconciled in that light (Russia's UN ambassador: *You are misguided if you think you have friends*, 9 April 2018; US ambassador to UN: *Russia will never be our friend, we'll slap them when needed*, 6 April 2018; Hillary Clinton, US Secretary of State: *Every nation has to either be with us, or against us*, 13 September 2001)
17. How are "hate" and "discrimination" to be distinguished from **preferences, biases, discernment and legitimate concerns** in the light of:
- "hatred" of:
    - football, basketball, blood sports, etc?
    - Afghan dogs, pitbull terriers?
    - French cooking, fast food, kosher/halal food, vegan food?
    - classical music, pop music, heavy metal, etc?
    - abattoirs, vivisection?
    - torture, corporal punishment, capital punishment, beheading?
    - religious symbols, veiled faces?
    - the young, the old, the obese, the ugly?
    - guns, weaponry, hunting?
    - domestic violence, sexual abuse, slavery?
  - "hatred of ": contrasting world views framed, such those claimed to be un-American, anti-American, anti-semitic, anti-religious, anti-science (*Guidelines for Critical Dialogue between Worldviews: as exemplified by the need for non-antisemitic dialogue with Israelis?* 2006)?
18. To what extent is the focus on "**what users want**", as members of the Facebook community, based on:
- what only some users have requested, and how their requests are especially heard and given priority?
  - what only some in Facebook think users want -- given their privileged position and/or the maximizing of its for-profit model?
  - what users might be persuaded to want, otherwise understood primarily in the light of possibilities of technical innovation?
  - what will reinforce buy-in as highlighted by specially designed platform modalities (*Social Media Triggers a Dopamine High*, American Marketing Association, 2014; *This is what social media is doing to your brain*, CNET, 8 September 2014; *Facebook addiction 'activates same part of the brain as cocaine'*, The Telegraph, 17 February 2016)?
  - what may benefit viable user group formation but is excluded from priority consideration?
19. Given the great emphasis placed on the **declared principles** of Facebook, and its commitments to implement remedial measures when inadequacies suggest that need:
- is there a problematic pattern to: assertions of total security, awaiting abuse (and user reporting thereof), possible apology, plugging security holes, and assertions of total security -- especially given the lags in that cycle?
  - is there a progressive loss of trust and credibility with respect to claims "we listen to you" -- with that claim unfortunately conflated with necessary public relations and marketing agendas?
  - what listening capacity is Facebook capable of enabling -- and how effective are the 20,000 promised content/security reviewers expected to be?
  - do these issues mirror the regulatory laxity of politicians and government oversight capacity?
20. Given the obviously **limited range of perspectives** evident in the Senate hearing -- compared to those in the Facebook community of users -- what **questions from other perspectives** were not effectively addressed, and how might they be determined and considered of relevance in the light of:
- the minimal representation of women -- and the manner in which their questions, as Senators, were inadequately answered?
  - the minimal representation of African Americans?
  - the minimal representation of youth, as primary users of Facebook (Mae Anderson, *Zuckerberg faces 'Grandpa' questions from lawmakers*, Financial Post, 11 April 2018)?
  - the quality of questions (Jonathan Freedland, *Zuckerberg got off lightly: why are politicians so bad at asking questions?* The Guardian, 11 Apr 2018; Mary Clare Jalonick and Barbara Ortutay, *Zuckerberg testimony reveals lawmaker confusion on Facebook*, Phys.Org, 12 April 2018; Zephyr Teachout, *Mark Zuckerberg's Facebook hearing was an utter sham*, The Guardian, 11 Apr 2018; Shara Tibken, *Questions to Mark Zuckerberg show many senators don't get Facebook*. CNET, 11 April 2018; Amelia Tait, *Five clueless questions United States senators asked Mark Zuckerberg*, New Stateman, 11 April 2018)?
21. In an ecosystem of users of "many voices", currently based to a remarkable degree on expression of "likes", how likely is this to be **inherently vulnerable over time in systemic terms** in the light of:
- the essentially "monopolar" nature of "likes" in an essentially multipolar global society -- whose diversity is as much characterized by "dislikes" as by "likes", with those not "liked" as likely to be framed as "disliked" by implication (*Destabilizing Multipolar Society through Binary Decision-making*, 2016)?
  - a dangerous degree of denial with respect to the existence of "dislikes" in distinguishing sub-communities of different persuasions and contrasting preferences -- "*one man's meat is another man's poison*"?

- the consequent distinction of those "liked" as "positive" in contrast with those "disliked" as "negative" (even "evil") ([Barbara Ehrenreich, \*Smile or Die: how positive thinking fooled America and the world\*, 2010](#))?
  - the subtle reframing of "dislikes" with reference to alternatives, which may then be perceived as "hated" -- whether or not that reframing takes the form of what is then erroneously detected (by AI) as "hate speech"
  - is the current challenge of distinguishing "hate speech" a consequence of past negligence -- to be recognized as a case of systemic "[chickens coming home to roost](#)"?
22. In repeatedly placing emphasis on the Facebook community and its **ecosystem of users**, how is the systemic viability of that ecosystem to be understood in terms of:
- the only too evident role in that ecosystem of "abusers" -- variously functioning in a "predatory" and "parasitical" mode as in any biological equivalent?
  - competition (or its absence), notably the possibility of alternatives to Facebook of non-US origin
    - a Chinese Facebook -- with the probability of a [wu wei](#) approach to more subtle algorithms?
    - an Arab Facebook -- with a probable emphasis on [Islamic geometric patterning](#)?
    - an African Facebook -- with a probable emphasis on rhythm ([Knowledge Gardening through Music](#), 2000)?
  - potential mergers, non-transparent cartel-like agreements, or automated data exchange arrangements -- between Facebook, Twitter, Google, Amazon, etc -- as illustrated by the subsidiaries of those corporations (Skype, Instagram, etc)?
  - future constraints on social media (site blocking) likely to force some to function otherwise in other niches -- even "underground" on the [Dark Web](#)?
23. Is there a strong case for highlighting the possibility of **unrecognized cognitive biases** within Facebook and its leadership in the light of:
- the possibility of [confirmation bias](#) given the emphasis on "likes" -- and an implication of a pro-American bias as an American corporation?
  - evidence highlighted at the hearing on the probability of inherent racial and ideological bias?
  - emerging insights into the operation of [filter bubbles](#) and [echo chambers](#) -- where an epistemic bubble merely omits contrary views, whilst an echo chamber brings its members to actively distrust outsiders
    - how does Facebook function as a filter bubble, or as a community of filter bubbles, and to what extent ([Eli Pariser, \*The Filter Bubble: what the internet is hiding from you\*, 2011](#))?
    - how does Facebook function as an echo chamber, or as a community of "yes people", and to what extent ([C Thi Nguyen, \*Escape the echo chamber\*, Aeon](#), April 2018)?
  - the implied transformation of the Facebook community into an echo chamber of "likers" -- effectively denying any systemic role to those framed as "disliked"?
  - personal biases, possibly reinforced by the [reality distortion field](#) of an iconic leader ([What's Powering Facebook's Reality Distortion Field? On the Media](#), 12 February 2014; [Climbing out of Facebook's reality hole](#), CNBC, 19 April 2017)?
24. Too readily denied, is there a **"dark face" of Facebook** -- a hidden "shadow facet" to the culture cultivated by Facebook and its community, in the light of:
- what is unconsciously avoided through the frequently expressed appreciation of multiple voices and their enablement?
  - a less than transparent association of (ab)users with its data?
  - a dangerously unconscious repression of the disliked
    - despite its manifestation in global society to such a high degree?
    - suggesting a future adaptation of a classic title: *We've Had a 100 years of Likes -- and the world is getting worse* ([James Hillman](#) and Michael Ventura, *We've Had a Hundred Years of Psychotherapy -- And the World's Getting Worse*, 1992)?
  - inability to process difference explicitly, other than by its negation and distorted framing as "hate speech"?
  - an unacknowledged competition between the liked and the disliked?
25. Given repeated indications of **future dependence on artificial intelligence** to detect problems and to resolve difficulties in improving the Facebook platform:
- is recourse to AI being used as a cognitive escape route -- appealing to techno-optimism regarding future innovation?
  - is there a dangerous assumption -- a displacement responsibility -- that AI will indeed be able to resolve issues that merit more effective consideration otherwise?
  - what kinds of systemic failure will AI not be able to detect ([Variety of System Failures Engendered by Negligent Distinctions](#), 2016)?
  - given the currently questionable role of some algorithms, is there no risk that their future design will embody modes of failure which will be even more difficult to detect and comprehend -- "[a fail safe system fails by failing to fail safe](#)" ?
  - why is no use made of AI to simulate the operation of Facebook itself -- and its oversight capacity with regard to security reviewing for abuse?
26. Why is use of **artificial intelligence to cultivate complementarity** between different voices not explicitly cultivated by Facebook, in the light of:
- the challenging role of difference in engendering creativity, adaptability and viability -- and the possibilities of consciously interweaving the disparate ([Edward de Bono, \*Six Thinking Hats\*, 1985; \*Six Action Shoes\*, 1991](#))
  - the possibility of eliciting viably creative group diversity through adapting existing profiling of individuals for match-making

- and dating purposes (*Group Questing or Twelving: proposal for a large-scale small-group development process*, 1976)
  - insights from instrumental jamming ([John Kao](#), *Jamming: the art and discipline of business creativity*, 1997)
  - insights from improvisation and [multi-part singing](#) in engendering a multiverse (*Improvisation in Multivocal Poetic Discourse*, 2016; *Engendering a multiverse through imagining*, 2012)
  - do Facebook algorithms currently only "play chess" when there are other alternatives (*Compare Go to Chess*; [Scott Boorman](#), *The Protracted Game; a wei ch'i approach to Mao's revolutionary strategy*, 1969).
27. To what extent should Facebook be recognized as a highly significant indication of the anticipated emergence of a "global brain", in the light of:
- constituting an ecosystemic global container for the [swarm intelligence](#) associated with every pattern of [flocking behaviour](#) (*Dynamically Gated Conceptual Communities: emergent patterns of isolation within knowledge society*, 2004)?
  - embodying to an ever greater degree the collective entities which previously took conventional statutory form (*Simulating a Global Brain -- using networks of international organizations, world problems, strategies, and values*, 2001; *Corpus Callosum of the Global Brain? Locating the integrative function within the world wide web*, 2004)?
  - arguments framing the probability of a [technological singularity](#)?
  - trending patterns of "cyclones" and "anti-cyclones" of opinion, indicative of "global weather" in information terms?
  - probability of a communication revolution of an unforeseen kind (*Forthcoming Major Revolution in Global Dialogue: challenging new world order of interactive communication*, 2013)?
28. However speculative, to what extent are there fundamental psychosocial **implications to Facebook as a brand name**, in the light of:
- the early (and primary) focus on the human image, whether exemplified by the dissemination of photos of the face or otherwise?
  - focus on "looks" and appearances, namely a potential facial fetish -- a bias to unacknowledged forms of "[facism](#)", too readily conflated with fascism (*Facism as Superficial Intercultural Extremism*, 2009)?
  - reinforcing discriminatory arguments against the veiled face as inhibiting capacity to "see into a person's soul" -- whether or not Facebook's own face is essentially "veiled"?
  - a potentially overriding concern with "putting on a good face", "keeping up appearances", and fear of "losing face"?
  - an inherent discriminatory bias against the disfigured and those framed as "ugly"?
  - reinforcing questionable assumptions of the "face as a book" to be read:
    - recalling the warning against [judging a book by its cover](#)?
    - the deprecated discipline of [phrenology](#) cultivated in the Aryan preoccupation of the Nazi regime
      - [Erika Janik](#) *The Shape of Your Head and the Shape of Your Mind* (*The Atlantic*, 6 January 2014)?
      - [C. Clairborne Ray](#) *How Does the Shape of a Head Affect the Brain?* (*The New York Times*, 1 January 2018)
  - the underlying implication that a face can be "booked" -- however questionably this process may be framed:
    - reinforced by the many subsequent developments of computer-enhanced match-making facilities, notably by online escort agencies?
    - a business model effectively based on "[booking](#)" "[face-time](#)", in the sense of reserving "attention time" for advertising?
    - lending Facebook to the caricature that it has a "procurement" or "pimping" function -- even to be framed as a form of "human trafficking" ([Amy Goodman](#). *"Facebook Doesn't Sell Your Data. It Sells You"*, *Democracy Now*, 11 April 2018)?
29. To what extent does Facebook now constitute a **self-reflective mirror for society** as a whole -- one of the few -- through which society observes itself, in the light of:
- the fundamental role that Facebook now plays in enhancing the community aspirations of "we the peoples"?
  - the implications for the necessity of a primary mirroring device through which one's face may be perceived, by oneself and by others?
  - the widespread enthusiasm for [selfies](#) posted on Facebook?
  - the implication that, as a mirror of society, Facebook is its own metaphor -- "our own metaphor", as argued by [Gregory Bateson](#) in concluding a conference on the effects of conscious purpose on human adaptation ([Catherine Bateson](#), *Our Own Metaphor*, 1972, p. 304)?
  - the dangerous neglect of "the other face" (on the other side of the mirror) -- the "dark face" -- perhaps to be caricatured by current web references to "Arsebook" as enabling connectivity with those one "hates"?
  - the tendency reinforcing "fake news" as a cosmetic disguise for any "other face" -- or facet of the truth?
  - the implied neglect of other dimensions of the whole human being -- potentially associated metaphorically with other parts of the anatomy: Chestbook, Heartbook, Bellybook, Handbook, etc?
30. To what extent did the configuration of the hearing acquire **symbolic dimensions** of great significance in the light of historical parallels:
- formally elected government representatives (of increasingly questionable legitimacy) confronting an iconic representative of the people -- echoing the pattern of [show trials](#) in periods of dubious leadership?
  - a representative of a global community interrogated by a potentially hostile national government (variously threatened and bent on regulation) -- echoing the challenges to international NGOs in various nation states?
  - a representative of a community of believers (like the [Christian community](#), or the [Islamic Ummah](#)) confronted by those

whose sense of order is challenged in practice by those beliefs and modes of organization?

- a committee of Member States of the United Nations interrogating an international NGO by which the UN is challenged -- offering the irony that both have since become relatively irrelevant to "we the peoples" compared to Facebook, and are now variously part of the community of Facebook users?
- the [interrogation of Galileo Galilei](#) by the Roman Catholic Inquisition for his support of heliocentrism -- culminating in his condemnation and the iconic final comment *E pur si Muove?*

## Interrelating the questionable faces of Facebook via polyhedral animation

**Requisite variety of questions?** The many hours of hearings over two days will give rise to hundreds of pages of transcribed official records. It is necessarily difficult to isolate points of focus, although the [references](#) indicated below are attempts by many commentators to do so. The exercise above endeavours to provide a focus through a set of questions -- a number of which feature variously in those references. Why 30? This is necessarily an arbitrary number, as with the much smaller numbers of questions which feature in some of those references. The selection of questions is also necessarily arbitrary and open to challenge.

The assumption here is however that a larger number of focal questions is consistent with the quest for the [requisite variety](#) to encompass the systemic complexity and preoccupations evoked during the hearings. By comparison, it is appropriate to note that the [Universal Declaration of Human Rights](#) consists of 30 articles affirming an individual's rights -- not 5 or 10. Rather than the closure implied by such "articles" in legalese, use is made here of "questions" as a means of evoking further reflection. This approach was previously applied to the terrorism which is such a preoccupation of security services and Facebook ([30 Questions for the Counter-terrorism Experts of the World: raising the question as to why they are not effectively addressed](#), 2017).

**Confusing multiplicity of "faces"?** Lengthy checklists, whether "bullet-points", articles or questions, are increasingly alienating. This is most notable with respect to comprehension of any systemic whole, whose elusive nature they may be optimistically assumed to imply. Ironically it can be argued that Facebook has many "faces", which would then call for their more integrative representation. These can be variously understood in terms of:

- [facets in the psychological sense](#), effectively a reflection of the personality traits it is so assiduous in documenting
- [faceted classification](#), namely with respect to any [faceted search](#), or faceted navigation, required to isolate desired search results
- [facet as a geometric feature](#) of a polyhedron, polytope, or related structure, generally of dimension one less than the structure itself

Curiously the hearings made almost no use of illustrations to enhance comprehension of those "facets" of the underlying nature of Facebook as a whole. More curiously, given the vast range of animations which are so characteristic of content on Facebook, no such animations were employed in the hearings.

How indeed are people to be expected to "get their head around Facebook"?

**Animation -- and Facebook dynamics?** There is therefore a strange sense in which the final comment to the Roman Catholic Inquisition of [Galileo Galilei](#) regarding movement calls for speculative consideration with respect to the absence of a new understanding of movement during the hearings. This is a new form of movement which Facebook enables. Paradoxically there is however a sense in which Facebook is itself complicit in a static representation of its various faces -- a "frozen" face, or "veiled" -- to the point of reinforcing any sense of its "superficiality".

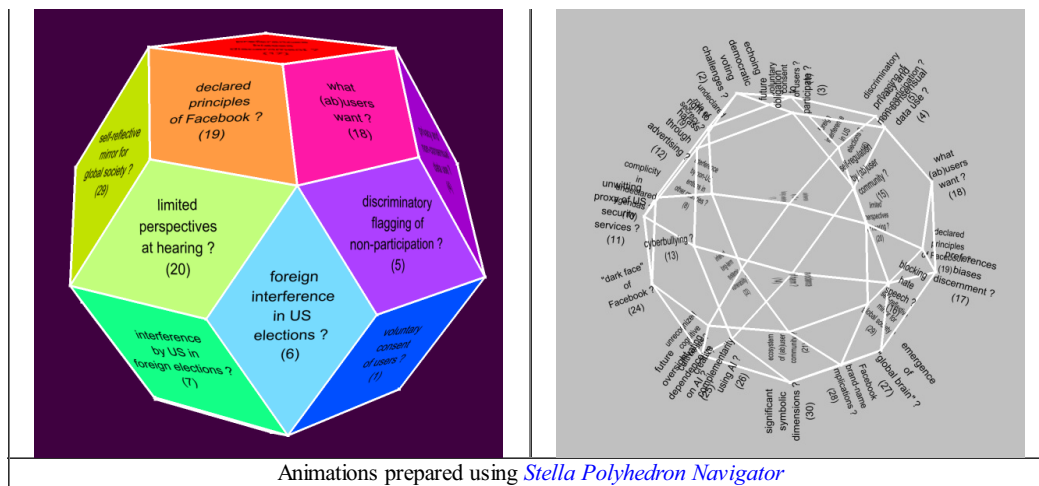
Exploiting the play on words, there is a case for recognizing that the "soul" or "spirit" of Facebook -- *anima* in Latin -- would be understood to a greater degree through "animation", one which it is so central to enabling. In contrast with the stasis characteristic of the conventional hearings, Mark Zuckerberg might well have framed his confrontation there from the contrasting perspective of *E pur si Muove* -- or so it might be seen by the future.

**Mapping the whole in movement:** This argument justifies the following experimental mapping of the 30 questions above onto the 30 faces of a polyhedron -- a [rhombic triacontahedron](#), for example -- with spherically symmetrical properties suggesting its integrative nature. Such a form can best be understood through rotational movement.

The mapping is necessarily arbitrary, for purposes of illustration, but suggests the possibility of refinement (with the aid of AI) to augment its integrative systemic significance -- and its comprehensibility through symmetry and other effects.

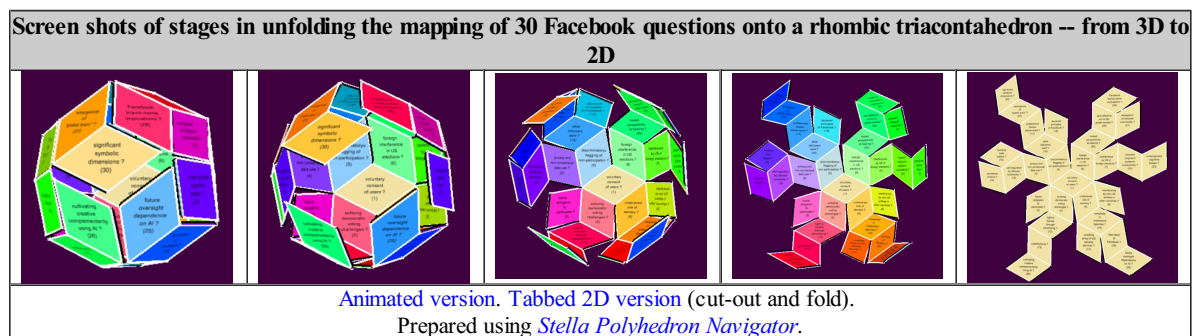
Use of a spherically symmetrical polyhedron for such a mapping has previously been made with respect to the articles of various charters of human rights ([Dynamic Exploration of Value Configurations: polyhedral animation of conventional value frameworks](#), 2008). In that case use was made of a [rhombicuboctahedron](#) and a [rhombicosidodecahedron](#) to indicate -- through the geometry -- a degree of [complementarity](#) between the identified values of the 30 articles of the *Universal Declaration of Human Rights*, the 18 articles of the *European Convention on Human Rights*, and the 53 articles of the *Arab Charter on Human Rights*.

| Animation of mappings of Facebook questions onto a polyhedron and its dual |  |
|--|--|
| Mapping of questions onto 30 faces of rhombic triacontahedron              | Mapping of questions onto 30 vertices of icosidodecahedron (faces transparent) |
|  |  |



Curiously the global representation (above left) clarifies the extent to which any such configuration of faces necessarily has a "hidden" hemisphere from any given perspective -- a set of faces only revealed by rotation. The image on the right suggests a form of transparency in this regard -- however this may be interpreted.

Another approach to visualization can be taken through unfolding the polyhedron into a flat presentation as shown below. For purposes of illustration and education, the 2D variant can then be cut out and folded back to form the 3D version -- as might be done for future hearings.



## Role of Facebook AI: superficial connectivity vs systemic insight?

**Implicit face framing in discourse by explicit points and lines:** The Q and A process of the hearings and testimony could be understood as one which lends itself to [discourse analysis](#) in its own right, and this may well be done, given the significance of the event. Although a live [transcription](#) of the hearings was evidently made, it is unclear to whom the resulting text might have been made immediately available -- as has been a practice in web dissemination of plenary meetings of [ICANN](#). This clearly meets a need for the hearing-challenged as well as enabling online (automatic) translation to other languages. It is a service that might have been offered by Google, if not Facebook. [Somewhat ironically, ICANN has a [key contract for Internet governance](#) with the government agency for which the bodies holding the Facebook hearings provide oversight -- namely the [US Department of Commerce](#)]

Missing however was any process whereby the points made, together with the lines of inquiry, could be immediately incorporated into some form of map for general display, for the personal screens of those present, and for wider dissemination -- as has long been technically possible (*Complementary Knowledge Analysis / Mapping Process*, 2006). The absence of any such mapping of the content of many hours of hearings undermined -- for all concerned -- any overall comprehension of the pattern of issues implied by the long sequence of questions and answers.

Such a transcript would have lent itself to immediate processing by content analysis software applications such as [Leximancer](#). This operates under the slogan "*text in -- insight out*" -- one from which the hearings could well have benefitted. This (AI) machine learning technique determines the main concepts in a text and how they relate to each other. It conducts a thematic analysis and a relational (or semantic) analysis of the discourse. It provides a method for transforming lexical co-occurrence information from natural language into semantic patterns or maps in an unsupervised manner. The algorithms used are statistical, but they employ nonlinear dynamics.

By contrast it can be argued that the hearings constituted an exercise in "skating" over the surface of concern, temporally highlighting points of preoccupation, briefly pursuing lines of argument, readily forgotten. Whilst the points and lines might variously converge, most obvious was the level of repetition in repeatedly traversing the same terrain -- in the absence of any map accumulating the points of focus and fields of concern.

In thereby exemplifying the superficial, it was consistent with questionable metaphors noted above with respect to Facebook -- notably the need for all concerned to "look good" for the audience, to "keep up appearances", and to "avoid losing face". Any sense of an accumulating overview -- a configuration of viewpoints and lines of argument -- was lost as the hearings progressed. To the extent that networks of points and lines define areas of concern -- potentially to be framed as "facets", if not "faces" -- these too were lost.

**Metaphorical uses of points and lines:** Of considerable potential interest is the metaphorical role of points and lines in discourse, also

discussed under the following headings in relation to other means of framing and holding insight (*Point and line considerations in discourse mapping*, 2015; *Experience of Cognitive Implication in Fundamental Geometry: unexamined metaphoric framing of strategic discourse*, 2012; *Cognitive Realignment: making points and aligning a target*, 2009):

- |   |   |
|---|---|
| Comprehension framed by "Point"                             | Comprehension framed by "Cylinder"                            |
| Comprehension framed by "Line"                              | Comprehension framed by polyhedra: "Tetrahedron", "Cube", etc |
| Comprehension framed by polygons: "Triangle", "Square", etc | Comprehension framed by "Sphere"                              |
| Comprehension framed by "Circle"                            | Comprehension framed by "Torus"                               |

*Point* is extensively used with regard to *making a point* and clarification of a *viewpoint*, for example. It is a common feature of presentations as "bullet points". It is typically expected that *points* are configured in terms of a *line* of argument which can be followed, with several such lines framing a more general field of concern -- a "face". In psychosocial settings, notably in the language of electronically enabled discourse, use may be made of *node* rather than point, and of *link* rather than line. The sense of *non sequitur* (of fundamental concern to the coherence of an argument) may then be partially understood in terms of "following" (or not), as in social media.

Of further relevance is the transformation of points and lines into legal and strategic discourse, as with the points in a declaration or plan, and adaptation of lines into "pillars", as is typical of the language of the European Union with regard to strategic principles (*Coherent Value Frameworks: pillar-ization, polarization and polyhedral frames of reference*, 2008; *Symbolic stars vs Strategic pillars; Polyhedra vs Helices; Logic vs Comprehension?* 2017).

The strategic potential of this array of metaphorical possibilities is evident from current international preoccupation with the *The Triple Helix concept* with respect to the *Triple Helix model of innovation*, as notably promoted by the *Triple Helix Association*.

How might Facebook's declaration of principles be rendered more comprehensible in such a light? How might the use of AI facilitate the process of using such conceptual geometry in future -- in many arenas -- and enabling transformation between geometrical and topological configurations?

## Polyhedra versus checklists in the coherent organization of categories

"Facebook"? As an extremely sophisticated information system, Facebook necessarily has a fundamental commitment to the organization of data. A contrast can therefore be made with any static checklist of points as typically favoured in the presentation of government documents and media declarations. In a sense the linear sequence of hearings -- and the viewpoints successively articulated - - constituted an antithesis of the coherence of the systemic operation of Facebook with its multiplicity of viewpoints expressed simultaneously in realtime..

To enable Facebook to "work", the data has to be ordered to a far higher degree. Arguably, to comprehend its operations, information about Facebook also calls for a higher degree of organization -- or run the risk of falling victim to "subunderstanding" (Magoroh Maruyama, *Polyocular Vision or Subunderstanding, Organization Studies*, 25, 2004, 3, pp. 467-480). Hence the argument above for moving beyond checklists, however hierarchically nested, to polyhedral mappings as presented above.

There is a sense in which the term "facebook" necessarily reinforces an oversimplistic comprehension of what is involved in Facebook as an information system -- however much the term has appeal for public relations purposes, however other dimensions of significance may be disguised. Subtler insight is offered by the following (playful) "expansion" of its implications

| Shifting metaphors -- beyond "face" and "book"? |                             |                |               |                |                 |
|---|-----------------------------|----------------|---------------|----------------|-----------------|
| <i>geometry</i>                                 | <i>information</i>          | <i>"book"?</i> | <i>"map"?</i> | <i>"form"?</i> | <i>"frame"?</i> |
| point / vertex                                  | data points (nodes)         | Pointbook      | Pointmap      | Pointform      | Pointframe      |
| line / edge                                     | links / likes / (axes)      | Linkbook       | Linkmap       | Linkform       | Linkframe       |
| face  | areas / frames / categories | Facebook       | Facemap       | Faceform       | Faceframe       |
| net   | map                         | Netbook        | Netmap        | Netform        | Netframe        |
| volume  |                             | Topobook       | Topomap       | Topoform       | Topoform        |

The transition across the four right-most columns helps to highlight the sense in which the many data points collected, together with the complex network of relationships (and "likes"), combine to "frame" a "face". This is essential to enabling the "face-time" valued by users in their interaction preferences, and by advertisers in attracting, capturing and holding their attention -- achieving "buy-in". Facebook can then be understood as a "framing" process, however that is to be appreciated or deprecated. As the quantity of data points and relationships increases in (geometrical or topological) complexity, so does the subtlety of the frame, and potentially the quality of the attention with which it is associated. Especially intriguing is the sense in which the framing process enables the possibility of "facing" an issue strategically -- "facing up" to a challenge.

Given the interplay of optical metaphors associated with face and frame, and the mirroring function of Facebook content (selfies, etc), of further interest is the extent to which transparency enables passage "through the mirror" (*Stepping into, or through, the Mirror: embodying alternative scenario patterns*, 2008). Given the preoccupation with optics, it is curious to recognize that association between image, face, mirror, frame, and window as favoured metaphors for use of web technology.

**Nesting polyhedra:** Whether in terms of government oversight, strategic management, or user understanding, there is a need for a form of "cognitive hegemony", as separately argued (*Embodying Global Hegemony through a Sustaining Pattern of Discourse: cognitive*

*challenge of dominion over all one surveys*, 2015). However deprecated globally, "hegemony" suggests the nature of the engagement with a worldview that an individual seeks to develop and sustain. That argument discusses, and illustrates, the further possibility of nesting polyhedra to hold multiple levels of understanding and enable transformation between them (*Nesting polyhedra to enable comparison of patterns of discourse*, 2015; *Dynamic patterning of discourse by nested polyhedra?*, 2015).

A useful metaphor to clarify this need is that of gearbox -- a "conceptual gearbox" -- enabling a **transmission system** between modalities of knowledge of different degrees of order (*The Future of Comprehension: conceptual birdcages and functional basket-weaving*, 1980). The operation of such a gearbox is now best illustrated using virtual reality technology, as featured in animations reproduced below.

Use of "gearbox" is necessarily a distortion in its own right, since future face-framing may need to be dynamic to a greater degree -- already implied by user "following" and the manner in which advertisers must track shifting trends. There is the further implication that this will in all probability call for higher dimensionality of which **polychora**, the 4D analogues of polyhedra, are one indication, as previously discussed (*Four-dimensional requisite for a time-bound global civilization?*, *Comprehending the shapes of time through four-dimensional uniform polychora*, *Five-fold ordering of strategic engagement with time*, 2015).

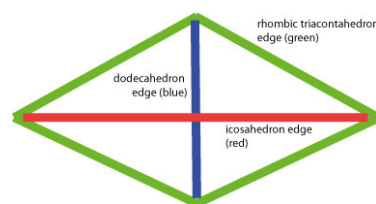
**Ordering the nesting of polyhedra:** The Kepler image (below) offers a classic suggestion of how the polyhedra might be ordered -- as a means of articulating "universal" insight through his cosmological model (George W. Hart, *Johannes Kepler's Polyhedra, Virtual Polyhedra*, 1988). Because of their contrasting symmetries, the Platonic polyhedra do not in themselves however offer a coherent pattern whereby they might be ordered and nested -- whatever this might imply in cognitive terms in relation to discourse.

A far more coherent approach to the nesting is offered by the rhombic triacontahedron (used above) -- with its 30 rhombic faces 60 edges and 32 vertices of two types. It is the dual of the icosidodecahedron, one of the Archimedean polyhedra, and is also a **zonohedron**, namely a convex polyhedron where every face is a polygon with **point symmetry** (or, equivalently, symmetry under rotations through 180 degrees). There is extensive commentary on the geometry of this polyhedron (*Rhombic Triacontahedron, Wolfram Mathworld*; Robert W. Gray, *Rhombic Triacontahedron, Encyclopedia of Polyhedra*, 2007; Paul Bourke, *Rhombic Triacontahedron*, 2002) As indicated by Stefan Schwarz, it consists of 30 uniform rhombi and shows the Golden Ratio in its diagonals (*Wooden Polyhedron: rhombic triacontahedron, VisMath*). The center of each rhombic face is the intersection point of the edges of a dodecahedron and icosahedron; the edges of the dodecahedron and icosahedron form the diagonals of the rhombic faces.

With respect to the nesting of the Platonic polyhedra, the most extensive study would appear to be that of Kenneth J. M. MacLean (*The Rhombic Triacontahedron*) -- namely an extract from his more general study (*A Geometric Analysis of the Platonic Solids and Other Semi-Regular Polyhedra*, 2007) in which reference tables are included for its construction. Unique amongst those authors with an interest in the geometry, MacLean also explores a theme of relevance to the discourse focus above (*Dialogues: Conversations with My Higher Self*, 2003).

For Kenneth MacLean (2007), the rhombic triacontahedron elegantly describes the nesting of the five Platonic solids in the following order: icosahedron, dodecahedron, cube, tetrahedron, octahedron, as remarkably **illustrated** (presumably extracts from his study), most notably with an **animated gif**. As the dual of the icosidodecahedron, the rhombic triacontahedron is usefully understood as a combination of the icosahedron and the dodecahedron, demonstrating the proper relationship between the 5 nested Platonic solids. He notes that the nested solids may not only grow and contract to infinity, but do so in a perfectly harmonious way.

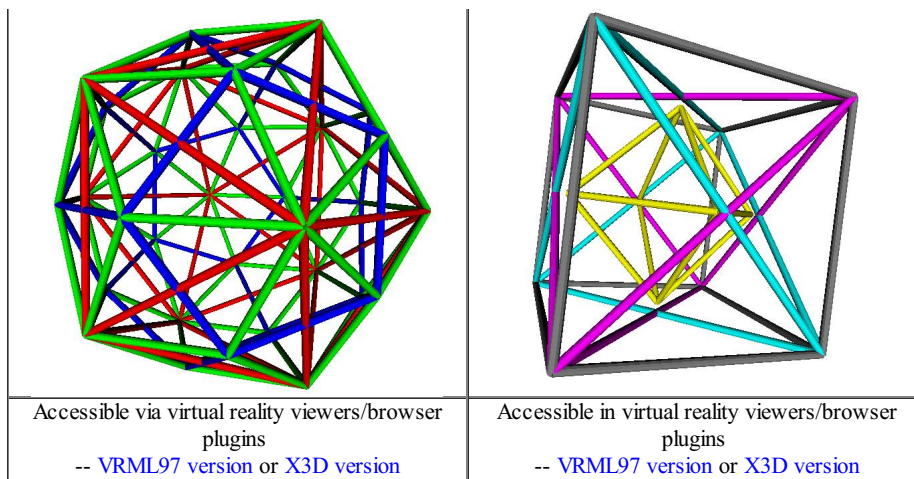
Of particular interest is the manner in which the rhombic faces (diamonds) of the rhombic triacontahedron assure a form of "reconciliation" between discourse patterned in icosahedral or dodecahedral form -- between 20-fold and 12-fold patterns. This is illustrated below in relation to the outer pattern of edges in the image on the left which follows:



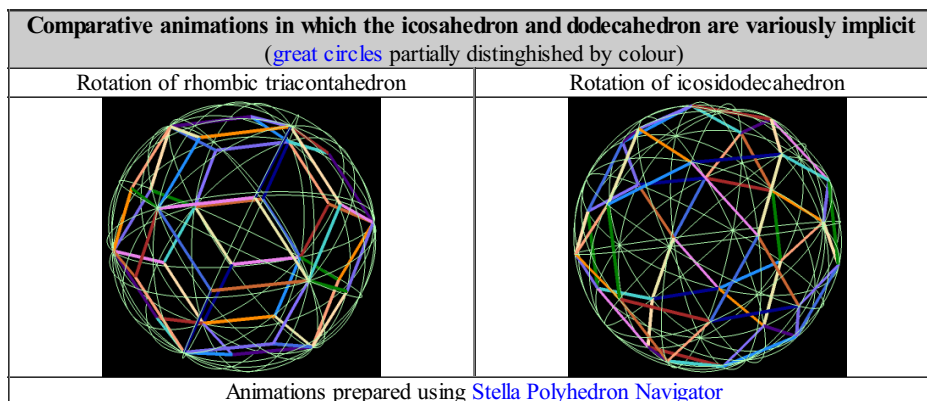
The cross-over midpoint could be understood as the intermediate position in any value polarity -- a form of "middle way", centered on each of the 30 faces of the rhombic triacontahedron. It is not a vertex on any of the three defining polyhedra indicated above. It corresponds to a vertex of the dual of the rhombic triacontahedron, namely the icosidodecahedron. Of further interest is the cybernetic work of **Stafford Beer** with respect to the icosahedron in its relation to discourse (*Beyond Dispute: the invention of team synergy*, 1994) leading to development of the process of **Synte-gration**<sup>®</sup>. The schematic above raises the valuable question of how a polarized discourse can be "crossed" by another -- whether to naturalize it or to recognize and give credibility to such an intermediary position.

Clarification of the nesting of polyhedra then offers a sense of the fruitful connectivity between levels of discourse -- whatever this may imply.

| Dodecahedron (blue) and Icosahedron (red)<br>nested within Rhombic Triacontahedron<br>(green) | Tetrahedron (cyan) and Tetrahedron<br>(magenta),<br>with Octahedron (yellow) nested within Cube<br>(grey) |
|---|---|
|   |   |



By combining the two structures above, the complete nesting configuration becomes evident -- a more consistently ordered version of Kepler's original image (below). The virtual reality viewers (including browser plugins) enable rotation and zooming into the structures. Of particular interest is the view from within the image on the left above or within that below. This recalls the work of [Keith Critchlow](#) both with respect to patterns in architecture and those in flowers, following his work on polyhedra (*The Hidden Geometry of Flowers: living rhythms, form and number*, 2011; *Islamic Patterns: an analytical and cosmological approach*, 1999; *Order in Space: a design source book*, 2000). It is of some interest that the flower metaphor -- in relation to polyhedra -- can be fruitfully associated with communication processes in the rise and fall of civilizations (*Flowering of Civilization -- Deflowering of Culture: flow as a necessarily complex experiential dynamic*, 2014)



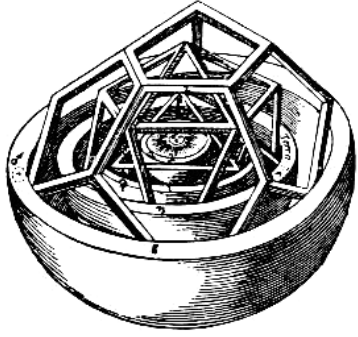
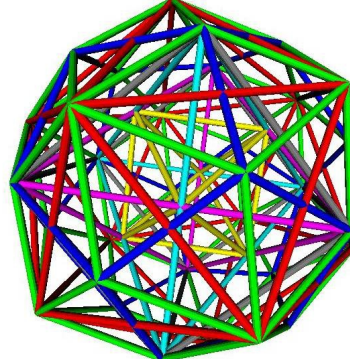
## Virtual reality of Facebook -- how it really "works"?

**Virtual reality representation:** Given the technological commitment of Facebook to the revolution in [augmented reality](#) and [virtual reality](#), experiments have been undertaken separately with polyhedral representation using virtual reality software. Given the commitment of Facebook to the development of AI applications, a wide variety of experiments of this nature is to be expected in the years to come in order to enable content to be more meaningful and exciting to explore. Just as computer screens have finally come to be used by government representatives in committee and plenary sessions, it is to be expected that at some stage use will be made in such contexts of virtual reality and augmented reality technology.

The image on the right is a virtual reality exercise in pulling together in an animation the arguments above relating to the ordering and nesting of fundamental categories of organization. It is usefully contrasted with the famous image on the left, given its significance in 1596 -- immediately prior to the [Galileo affair](#) in 1633 (cited above). For many, in terms of its global significance, Facebook functions as a form of solar system in their daily lives. The question is whether Facebook is currently mistakenly understood by many in ways comparable to the misunderstanding by Kepler of the solar system at the time.

In addition to [astronomical cycles](#) and [climate cycles](#), there is considerable recognition of [social cycles](#), and especially [business cycles](#) (see [List of cycles](#)). Recognition of how a system "works" is also understood in terms of [thermodynamic cycles](#). These involve transfer of heat and work into and out of the system, while varying pressure, temperature, and other variables within the system -- eventually returning the system to its initial state. In considering how Facebook "works", there is a case for exploring such categories as metaphors. One unique online experiment in enabling understanding of how structures worked was [Soda Constructor](#) (now disabled) -- which attracted millions of users at all levels of society (*Animating the Representation of Europe: visualizing the coherence of international institutions using dynamic animal-like structures*, 2004). In that spirit, the animation on the right can be explored as a source of clues as to how Facebook works in cycling through configurations of categories of more or less fundamental nature. The nested cycles potentially recall the dynamics of a pumping heart -- raising the provocative question as to whether Facebook can be considered to have a "heart".

|   |
|---|
| <b>Rhombic Triacontahedron (green)</b><br>as a nesting framework (combining the images) |
|---|

|  |  |
|--|--|
| <p><b>Nested polyhedral model of solar system of Johannes Kepler (1596)</b></p>                  | <p>above)<br/>with Dodecahedron (blue), Icosahedron (red), Cube (grey), Octahedron (yellow), with Tetrahedron (cyan) and Tetrahedron (magenta)</p>   |
|                 |    |
| <p>Reproduced from <i>Wikipedia</i> entry on <a href="#">Mysterium Cosmographicum</a> (1596)</p> | <p>Virtual reality variants: <i>static</i>: <a href="#">vrml</a> or <a href="#">x3d</a>; <i>mutual rotation</i>: <a href="#">vrml</a> or <a href="#">x3d</a>; "<i>pumping</i>": <a href="#">vrml</a> or <a href="#">x3d</a>; videos: "<i>pumping</i>" <a href="#">mp4</a>; "<i>rotation</i>" <a href="#">mp4</a></p> |

**How Facebook "works" systemically?** Several commentators highlighted the mystery of how Facebook "works" (Amy Goodman, "[Facebook Doesn't Sell Your Data. It Sells You](#)": [Zeynep Tufekci on how company's profit really works](#), *Democracy Now*, 11 April 2018; Shira Ovide, [Mark Zuckerberg refuses to admit how Facebook works](#), *MoneyWeb*, 14 April 2018). This mystery mirrors that of how global society "works" -- highlighted to some degree by the mysterious nature of the "international community" to which so many appeals are made ([International Community as God or Sorcerer's Apprentice? Strategic chaos in the absence of an interlocking temporal pattern of longer-term cyclic processes](#), 2015).

Fundamental to how it "works" is the underlying implication that a face can be "booked" -- however questionably this process may be framed. It can be partly understood as an extension of the operation of the computer-enhanced match-making facilities of its origins, notably as enhanced subsequently by online dating and escort agencies. However it is the manner in which its business model is effectively based on "booking" "face-time" that is more difficult to comprehend -- in the sense of reserving exclusive "attention time" for advertising.

Facebook now plays a primary, if not essential, role in the attention economy ([Investing Attention Essential to Viable Growth](#), 2014; T. H. Davenport and J. C. Beck, *The Attention Economy: understanding the new currency of business*, 2001; Michael H. Goldhaber, *The Attention Economy and the Net*. Telepolis, 27 November 1997).

For Davenport: *Understanding and managing attention is now the single most important determinant of business success*. For Goldhaber: *The currency of the New Economy won't be money, but attention*. As described by *Wikipedia*: [attention economics](#) is an approach to the management of information that treats human attention as a scarce commodity, and applies economic theory to solve various information management problems. In the extensive review of issues relating to the [Attention economy](#) by the [P2P Foundation](#), it is recognized as an economy driven by the exchange of attention with the implicit goal of tightly intertwining everyone at the level of mind.

Potentially more intriguing is the sense in which attention will come to be entangled with tokens of confidence ("likes"?) as has traditionally been the case with monetary tokens.

**Oppositional logic?** The fundamentally questionable bias of the workings of the Facebook ecosystem -- with respect to "likes" -- has been highlighted above. As noted, this implies that "dislikes" are only implicit. On a spherically symmetrical polyhedral representation, as above, this would tend to imply that whatever is "disliked" is somehow associated with the opposite side of that form -- at some distance, and thereby "hidden", if not unconscious and "lost".

It could be argued that there is a strong case for Facebook AI to incorporate the subtle insights of so-called "oppositional logic" into its systems (Guoping Du, Hongguang Wang and Jie Shen, [Oppositional Logic, Logic, Rationality, and Interaction](#), Springer, 2009, pp 319-319). As noted by the authors:

In intuitionistic logic system, constructive negation operator complies with the law of contradiction but not the law of excluded middle in intuitionistic logic system.... Oppositional logic is an extended system of classical propositional logic.

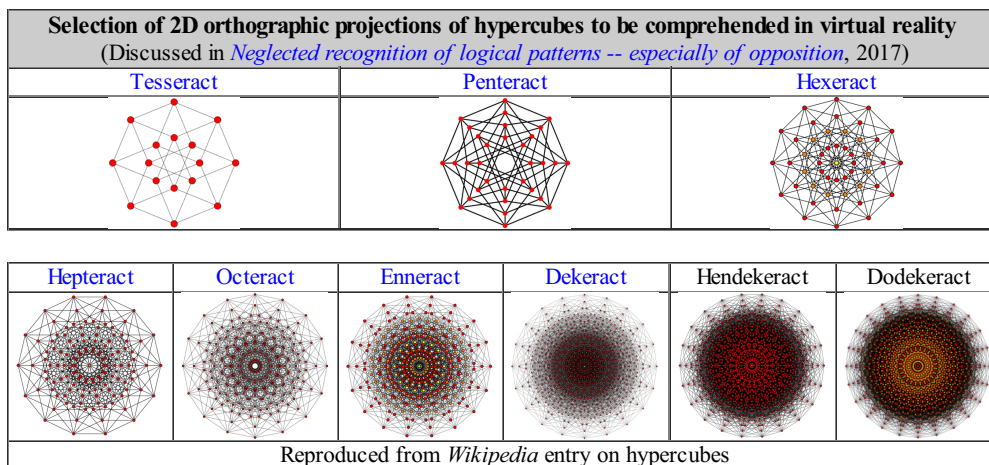
As noted separately, in the use of the more complex dynamic framings beyond that of the afore-mentioned Triple Helix Model, oppositional logic draws heavily on polyhedral representation ([Framing Cyclic Revolutionary Emergence of Opposing Symbols of Identity: Eppur si muove: Biomimetic embedding of N-tuple helices in spherical polyhedra](#), 2017). With respect to [Neglected recognition of logical patterns -- especially of opposition](#), it is there noted that:

...there is continuing interest in polyhedral patterns as a means of clarifying distinctions in logic. What could be considered amazing at this time is the manner in which this focus is restricted to an extremely limited range of polyhedra. **No questions seem to be asked as to why related polyhedra are not of significance** -- even when extensively studied by other disciplines. This is especially striking in the case of the [rhombic dodecahedron](#), favoured as a pattern in the study of logical connectivity.

This polyhedron is a geometric dual of the **cuboctahedron** whose particular characteristics with respect to transformation between polyhedral forms have been highlighted by Buckminster Fuller and notably proved fundamental to enabling him to design geodesic domes.

Of related significance is the sense in which the opposition implied by "dislike" is of fundamental importance to the security services in terms of their secretive assessments of threat. This follows from the frequently articulated US policy noted above: *You're either with us, or against us*. The formal extension beyond simplistic oppositional logic enables consideration to be given to the potential **triangular**, **quadrangular**, **pentangular**, **hexangular**, **heptangular**, **octangular**, **enneagram**, **decagonal**, **hendecagram** and **dodecagram** patterns of group and thematic bonding (*Dynamic bonding patterns in n-tuple helices engendering n-fold rotating symbols*, 2017). Engendering groups on Facebook in this way would then be analogous to the current investment in design of molecules with new properties. From genetic engineering to **memetic engineering**?

Such possibilities could be detected and enabled by Facebook AI and rendered widely comprehensible through its virtual reality adaptations (Lisa Eadicicco, *Inside Facebook.s Plan to Take Virtual Reality Mainstream*, *Time*, 2 August 2017; Alice Morby, *Facebook launches virtual-reality headset that can be used without other devices*, *De Zeen*, 13 October 2017; Ben Popper, *Facebook.s head of social VR talks about the future*, *The Verge*, 15 October 2017).



## Democratic Intelligence versus Artificial Intelligence?

Media commentary on inconclusive questioning of Mark Zuckerberg at European Parliament (22 May 2018, Addendum)

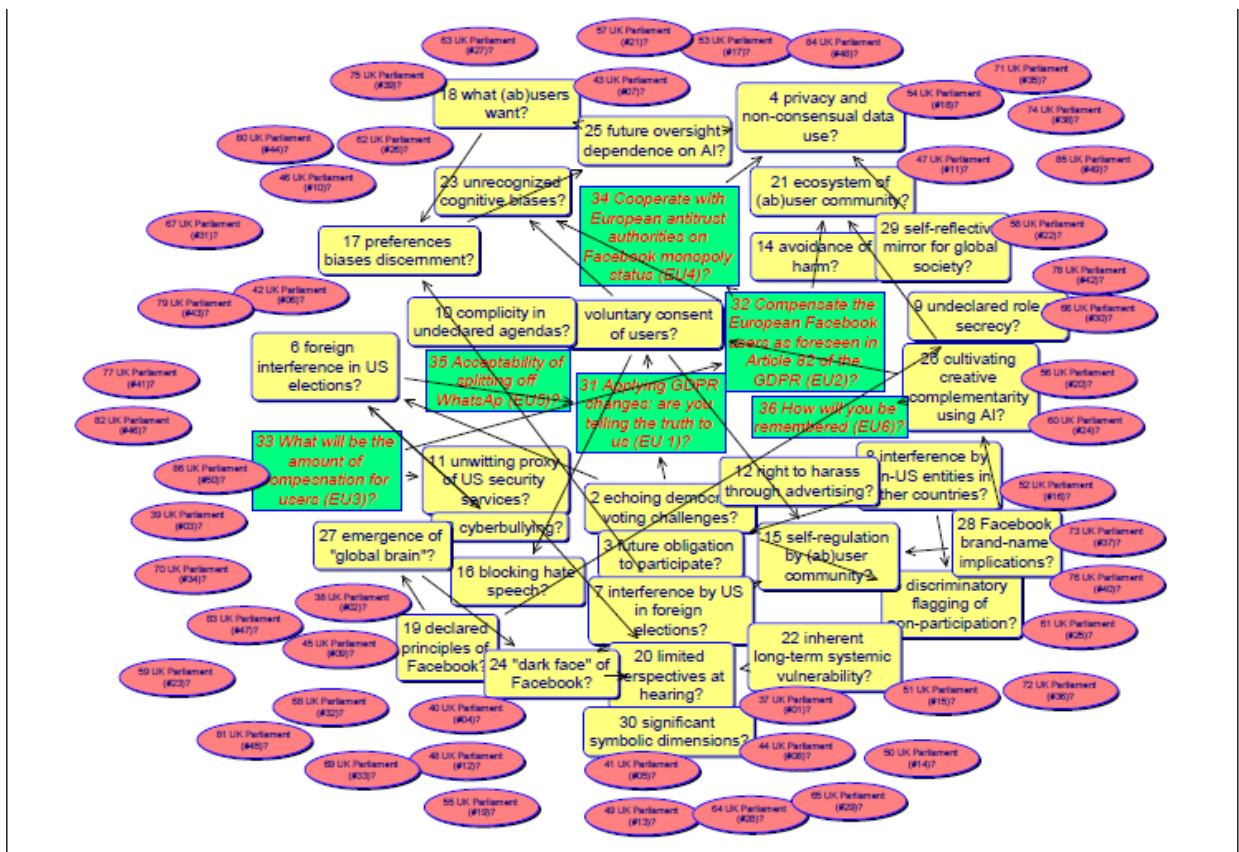
- *Complaints that Zuckerberg 'avoided questions' at European parliament* (*The Guardian*, 22 May 2018)
- *Mark Zuckerberg Played Parliament for Fools and They're Pissed* (*Gizmodo*, 22 May 2018)
- *Mark Zuckerberg dodges punches at European Parliament* (*Politico*, 22 May 2018)
- *Mark Zuckerberg apologises to European Parliament for massive data leak* (*Euronews*, 22 May 2018)
- *Mark Zuckerberg let off the hook by shambolic European Parliament grilling* (*The Independent*, 22 May 2018)
- *The questions Facebook's Mark Zuckerberg didn't answer for EU Parliament* (*CNET*, 22 May 2018)
- *'Are You Telling The Truth?' European Parliament Questions Mark Zuckerberg* (*NPR*, 22 May 2018)
- *European lawmakers criticize Zuckerberg for his lack of answers* (*CNBC*, 22 May 2018)
- *UK Parliament lists over 50 questions to ask Zuckerberg in Brussels* (*CNET*, 21 May 2018)

### Interactive visual display which could have been used to focus questioning

Given that EU meeting rooms now make considerable use of screens at each desk, as well as offering internet and wifi facilities, it is surprising that long-available technology such as **Decision Explorer** is not used to map questions interactively. This could be done prior to a hearing, or progressively added during a hearing -- as a form of visual minute writing. Links between questions could be made as the questions were asked. The process then maintains and gives rise to an overview. Questions could be tagged as they are answered. Comments could be associated with each question -- possibly inserted by external staff, with links to available explanatory documents. The map could be further developed and enhanced subsequent to the hearing -- including the promised additional answers from Facebook in this case.

The following map is presented as an illustrative exercise using 6 EU questions (unanswered), the 30 questions identified above, and indicating the 50 purportedly supplied by the UK Parliament. No effort has been made to indicate which were answered.

| Illustrative mapping of questions using minimal facilities of Decision Explorer<br>Green: 6 EU "unanswered questions"; Red: 50 "UK Parliament questions" (unspecified); Yellow: 30 questions listed above<br>Positioning and interlinkage arbitrary -- for illustrative purposes only |
|---|
|   |



For further details on use of Decision Explorer, see: [screenshots](#), [case studies](#), [cognitive mapping guidelines](#), [users](#), [learning videos](#). Group decision-making support is provided through [Decision Explorer Connect](#). This allows a group of people in the same location to collaborate in the entry of those ideas, and then to organise them by preferencing, rating or otherwise evaluating them. Designed to support [Visual Strategy Making](#).

For other illustrative uses of Decision Explorer, see: [Mapping the Network of Terror \(2002\)](#), [Experimental map of refugee/migrant issues](#), [Experimental map of knowledge ontology issues](#), [Experimental map of water management issues](#)

*What happened when Alexandria Ocasio-Cortez came face to face with Facebook's Mark Zuckerberg*  
 Carole Cadwalladr, *The Guardian*, 26 October 2019

The New York politician has exposed the firm's shameless disregard for the truth  
*Ocasio-Cortez stumps Zuckerberg with questions on far right and Cambridge Analytica*  
 Kari Paul, *The Guardian*, 23 October 2019

Democratic lawmaker challenges Facebook CEO during hearing over Libra cryptocurrency  
*Facebook's Zuckerberg grilled over ad fact-checking policy*  
 BBC News, 24 October 2019

*Mark Zuckerberg Defends Facebook's 'Libra' Currency Plans Before Congress*  
 Marcy Gordon, *Time*, 23 October 2019

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