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THE CYBER EXTREMISM ORBITAL PATHWAYS MODEL

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Abstract

The starting premise of this study is that internet-based communications possess unique characteristics that warrant the need to have a discrete pathway model to explain online radicalisation. This online radicalisation pathway model would especially apply to the growing communities of young netizens whose socio-psychological makeup is shaping a "new normal" in the way we exchange information and interact. The proposed Cyber Extremism Orbital Pathways Model (CEOP) describes how online cognitive radicalisation can move towards real-world violent extremism. The model also elucidates the multitude of competing forces in cyberspace that promote or impede such radicalisation and what this means for online counter-radicalisation strategies. The CEOP model is based on inferences made from content and discourse analysis of extremist narratives on the internet and current studies about internet-based communications. The research took into account distinctive factors that made internet-based messaging more persuasive and this includes the effects of crowdsourcing. Finally, the CEOP model suggests how the same persuasive communication strategies used on the internet by extremists can be conversely used to counter online radicalisation.

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Introduction

Online Radicalisation is a phenomenon that has become almost axiomatic when one reads about individuals going to fight in jihadi conflict zones or in cases of home-grown radicalisation. It has been cited in many of these cases to the point that it is almost the "new normal" in the radicalisation process. Despite this, real world radicalisation is still the main focus especially in regions where it is not very pervasive or when avenues to radicalisation are more easily available in the real world. But with the internet becoming more pervasive, it has become an integral part of the radicalisation process to a greater or lesser degree almost anywhere. More often than not, when incorporated into a study of the phenomenon of radicalisation in totality, the internet is often relegated to the role of being a mere facilitator of the entire process.[1] [2] This unfortunately results in overlooking the significant role played by the unique attributes and online community dynamics of the internet realm that contribute to the radicalisation process. It is these attributes and dynamics that warrant a deeper explanation that goes beyond simply talking about the "echo chamber"[3] effects. A pathway model specific to the online realm is thus needed to effectively understand these unique attributes of the internet, contributing to radicalisation. Such a model is especially useful when subsequently examining approaches towards counter-radicalisation over the internet itself.

The opening premise of this paper is that characteristics of traditional radicalisation pathway models[4] still apply to the online realm but they can be enhanced to factor the unique characteristics of the internet that have an impact on radicalisation. The Cyber Extremism Orbital Pathways (CEOP) model presented in this paper aims to do just this. For purposes of discussion in this paper, radicalisation is seen as a process while extremism and, more importantly, violent extremism is seen as an end state in this process. The radical in this paper is one who advocates revolutionary political, economic or social reforms that contradict or go against mainstream societal views, norms or values.[5] [6] The

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[1] Marie Wright, "Technology and Terrorism: How the Internet Facilitates Radicalization.", The Forensic Examiner, http://www.theforensicexaminer.com/archive/winter08/7/ (accessed August 9, 2014).

[2] RCMP, "Youth Online and at Risk: Radicalization Facilitated by the Internet.", Counter Extremism : Institute for Strategic Dialogue. https://www.counterextremism.org/resources/details/id/304/youth-online-and-at-risk-radicalization-facilitated-by-the-internet (accessed August 11, 2014).

[3] This is the idea that the internet acts as an 'echo chamber' for individuals to have their ideas and worldviews echoed and advocated by other similarly thinking individuals. See Ines Von Behr, Anaïs Reding, Charlie Edwards, and Luke Gribbon. "Radicalisation in the Digital Era." RAND Corporation, http://www.rand.org/content/dam/rand/pubs/research_reports/RR400/RR453/RAND_RR453.sum.pdf (accessed August 11, 2014).

[4] Examples of Operational Pathway Models: National Counterterrorism Center (NCTC) Radicalisation Framework, Federal Bureau of Investigation (FBI) Radicalisation Framework, the NYPD (New York Police Department) Model and the Strategic Multi-Layer Assessment (SMS) & McCauley two Pyramid model. See Orlina and Desjardins, "Cyber on the Brain", 12-16

[5] Alex Wilner and Claire-Jehanne Dubouloz, "Homegrown Terrorism and Transformative Learning: An Interdisciplinary Approach to Understanding Radicalization," Canadian Political Science Association. http://www.cpsa-acsp.ca/papers-2009/wilner-dubouloz.pdf (accessed August 11, 2014), 8

process of becoming a radical can degenerate towards extremism which is more harmful as it entails polarising and/or absolutist, supremacist worldviews which vilify a particular group or political entities including the state to the point that extreme actions involving violence might even be advocated.[7] [8]

This paper will start by elucidating the unique features of the internet that impact on radicalisation starting with an explanation of why the internet is the realm of counter-culture and those who distrust accepted/mainstream perspectives of issues and events. It will then explain how many options exist on the internet for a counter-culture of "truth seekers". From here, the paper will demonstrate how there are competing forces of attraction on the internet which create an ideal realm for cognitive radicals to stay where they are. "Cognitive radicals" is the term this paper is using to refer to individuals on the internet who identify and espouse extremist ideologies and worldviews by talking about them online but not manifesting them in any form of real world behaviour. The cognitive radical for the jihadi universe is known as an "armchair jihadist". A prime example of an "armchair jihadist" would be Babar Ahmad who was one of the pioneers to use the internet for promoting radical jihadi worldviews.[9] The idea of competing pulls and cognitive radicals on the internet leads to an analysis of tipping points and factors causing one to go deeper down the path of radicalisation towards more extremist behaviour. A discussion of these factors would entail examining why ideas can be more believable on the internet and why is it that communication strategies over the internet causes a message to gain traction and become viral. This will culminate into a discussion on crowdsourcing and why netizens turn to social networks for answers. The central part of this paper will then introduce and explain the proposed CEOP model for online radicalisation. A discussion of this model will also entail examining factors that influence the shift towards a deeper stage of radicalisation and how the model can be used for conceptualising online de-radicalisation strategies. Finally, the paper will propose operational counter-measures for online radicalisation stemming from the characteristics of the internet that facilitate radicalisation as described in the CEOP model.

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[6] Randy Borum, "Radicalization into Violent Extremism I: A Review of Social Science Theories.", Journal of Strategic Security 4, no. 4 (2011): 7-36, 9-10

[7] Ibid.

[8] Laird Wilcox, "Laird Wilcox on Extremist Traits.", The Hoaxer Project Report, http://www.lairdwilcox.com/news/hoaxerproject.html (accessed August 10, 2014).

[9] Rüdiger Lohlker, "New Approaches to the Analysis of Jihadism Online and Offline", Göttingen: Vandenhoeck & Ruprecht, 2011, 156

Trust vs. Doubt—The Starting Point

The dynamics of internet discourse creates the impression that "truth" resides on the internet as it allows access to information that is not controlled by the state or restricted. Opponents of internet censorship have cited this as a reason to oppose control of the internet.[10] [11] This is another seductive impression that the internet environment creates. Counter-culture groups leverage on this impression. Such groups then claim to offer alternate perspectives or "truth" that is feared by those in power as it threatens their position. The internet offers a relatively safe haven for those who "opt out" from mainstream views and this can apply to deviant counter-cultures as well.[12] Counter-culture is predicated on scepticism of mainstream narratives and accepted norms. Ressa described in general, how any society has an inherent public distrust of institutions to various degrees.[13] The internet counter-culture discourse leverages on such varying public distrust of information from state or institutional sources. Ressa went on to explain how internet whistle-blowing during the "Patrol your votes campaign" in the Philippines was a great success primarily due to such factors.[14]   It is thus easy to see how the internet offers an ideal realm for counter-culture to thrive in.

The CEOP model takes into account the nature of counter-culture on the internet. The internet has a counter-culture nexus primarily catered for sceptics.[15] These can be sceptics who do not accept mainstream or state accounts of events and rationale for any course of action, policies, etc. These "sceptics" are already fuelled with a distrust of conventional or mainstream information. Having said this, not all information seekers start out as sceptics and neither do all sceptics become radical and extremist. However, the sceptics' predisposition to distrust most mainstream information or values makes such an individual more inclined to enter radical orbits. Hence the starting point for online radicalisation in the conceptual model that will be described later is the "sceptical" seeker who distrusts mainstream information. Added to this mix is the wide variety and accessibility of counter-culture choices the internet provides.

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[10] Gaye Levy, "Freedom of Speech, Internet Censorship and SOPA.", TruthTheory, http://truththeory.com/2012/01/21/freedom-of-speech-internet-censorship-and-sopa/ (accessed April 14, 2014).

[11] Bart Sibrel, "Interdiction Prediction: Will the Internet be Taken Down to Stifle What Remains of the Free Press? | TheSleuthJournal.", TheSleuthJournal RSS, http://www.thesleuthjournal.com/interdiction-prediction-will-internet-taken-stifle-remains-free-press/# (accessed April 14, 2014).

[12] Philippe Breton, "Wired to the counterculture". Le Monde Diplomatique. http://mondediplo.com/2000/10/06internet (accessed Nov 12, 2013).

[13] Maria Ressa, "From Bin Laden to Facebook: 10 days, 10 years". Mandaluyong City, Philippines: Anvil Pub., 2012, 120

[14] Ibid.

[15] Steven Novella, "The Internet and Skepticism." NeuroLogica Blog, 2011, http://theness.com/neurologicablog/index.php/the-internet-and-skepticism/ (accessed April 10, 2014).

The Internet: Many options for "Truth" seekers and Counter-culture

The internet environment generates opportunities for the creation of self-imposed isolating institutions or "virtual institutions" where lack of exposure to alternate ideas allows a biased perspective to become entrenched.[16] In such isolated environments, dominant personalities are able to entrench ideas that later become normalised as a result of interactions with similar thinking individuals.[17]

What this perspective overlooks is that on the internet the same individual also has recourse to simultaneously explore other sources. A study published on the *jihadica* website on 66 accounts listed by a *Shumukh al-Islam* jihadi forum member as important Twitter accounts showed that 79 per cent of the users in the sample followed not just one but between two to five of the important jihadi accounts.[18] While the basic ideas espoused in various jihadi platforms might seem similar, we cannot negate the existence of variations in their perspectives. Furthermore given the hyper connectivity of the internet, users are able to explore outside the jihadi domain for corroboration and answers. Very often in jihadi forums, we do see links and references made to mainstream news sources to support their perspectives especially when it comes to conspiracy theories.[19]

This ability to explore multiple sources of information rapidly without almost any restriction is an important feature of the internet medium. Users while still revolving around similar perspectives get the impression that they have the freedom to exercise their individual agency and decide for themselves by checking a multitude of sources. This can further create the notion that the decision made is true as it seems corroborated, free of misdirection and coercion and one that the individual chose freely for oneself. This creates the impression among netizens that they are in an environment of an "ideal speech situation". Jorgen Habersmas described the "ideal speech situation" as one that is free of coercive influences by a more powerful party. This allows communication to be free and based on reason.[20]

In the real world, such significant nodes exist but accessibility is naturally more difficult, whereas on the internet, points of influence are far more copious and accessible. Once such a relationship is established in the real world, the individual is "hot housed" in the social realm of this node. However, if something disrupts this real world relationship (loss of credibility, failed relations with the individual or

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[16] Robyn Torok, "Developing an explanatory model for the process of online radicalisation and terrorism". Security Informatics 2013. 2:6. http://www.security-informatics.com/content/pdf/2190-8532-2-6.pdf (accessed Nov 13,2013)

[17] Ibid.

[18] Ali Fisher and Nico Prucha, "66 Important Jihadi on Twitter", jihadica. http://zoom.it/1Rda#full (accessed Nov 13,2013)

[19] Akil N. Awan, "Virtual jihadist media: Function, legitimacy and radicalizing efficacy", *European Journal of Cultural Studies* 10, no. 3 (2007): 401.

[20] James Bohman, "Jürgen Habermas." Stanford University. http://plato.stanford.edu/entries/habermas/ (accessed April 9, 2014).

group, etc.), the individual's radical process is disrupted. This kind of disruption is far less critical in the virtual world where many alternate and accessible radical hubs exist. It is akin to a buyer's market on the internet, where the individual can pick and choose among the variety of counter-culture hubs, each of which have a centre of gravity and their own set of appealing factors.

Competing forces of attractions and cognitive radicals

The other key distinction for a radicalisation pathway model is the interplay between competing "pulls" that exist on the internet. They can be mainstream information or influences that pull an individual towards accepted norms and values that make any ideology, even radical ones within the bounds of acceptability. These too are highly prevalent and accessible on the internet. But having said this, it must be noted that there may be mainstream pulls, but these do not act on the "victim" unless he accesses them. Netizens are not always passive actors who are swayed by the persuasiveness of any particular source of information, by the acceptance offered in a virtual community or by any structural conditions that predispose them to radical messaging. They do (to varying degrees) weigh an argument according to their reasoning and make a conscious choice towards a particular line of inquiry. But this ability to exercise one's agency comes under structural influences created by biases inherent in search engines. The final outcome is then essentially a product created by the interplay between agency and structure on the internet.[21]

Grindrod and Sloggett described how technology has provided a wide range of ways for social movements to be organised, for people to get involved in them, have their attitudes and beliefs shaped and for the movement to be mobilised for any action in furtherance of its collective goals. [22]

In their study using mathematical modelling to facilitate understanding of radicalisation, they explain how a degree of inferential abstraction helps. They represented psychological and sociological pathways to radicalisation as akin to a game of *snakes and ladders*.[23] This involves a set of back and forth movements with events in life and the world around them representing these snakes and ladders. There will be times when there is quick advancement into violence or sliding back down if increased enforcement or other counter-narratives gain traction. Given the sheer diversity of narratives and opinions on the internet coupled with any possible number of external influences, it stands to reason that radical pathways on the internet would naturally be fluid, unstructured and multidirectional. This implies that for radicalisation on the online medium, there is no stable, definite and gradated pathway akin to how a player moves in a game of snakes and ladders.

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[21] Kris Christmann, "Preventing Religious Radicalisation and Violent Extremism, A Systematic Review of the Research Evidence"*,* (Youth Justice Board for England and Wales), 2012, 21

[22] Peter Grindrod and David Sloggett, "From Grievance to Martyrdom: A Mathematical Perspective on the Journey of Radicalisation." Center for the Mathematics of Human Behaviour, Department of Mathematics and Statistics, University of Reading, 2011, www.reading.ac.uk/web/FILES/centre-for-the-mathematics-of-human-behaviour/from_grievance_to_martyrdom.pdf. (accessed May 28, 2013), 1

[23] Ibid, 2

In the online realm, there is competition at times and cooperation when it comes to aligned agendas. Research done for online gaming makes reference to the "Gamification" theory. In the internet social forums and on gaming platforms, there is competition for status, accolades and validation of their ideas. Many gamers thrive on such competition as do forum leaders who compete for the most followers.[24] Some find that they are able to achieve such rewards better in the virtual world than in the real world. This virtual competition impacts on the radicalisation pathway by either reinforcing or creating doubt in extremist ideas.

Grindrod and Sloggett used the *Lagrangian point* concept from astrophysics to describe the point at which a body is at equilibrium when it is between two competing gravitational bodies. Someone being radicalised over the internet would also similarly be in a temporal state of equilibrium for a short while before other "gravitational" forces tug the individual elsewhere. This is contingent on the staying power or reasoning of the individual to remain in the point of choice. Grindrod and Sloggett describe how rapid radicalisation can be for those who stay the course; as rapid as six weeks or for others as long as 9-15 months. The intervention points would then be akin to the "snakes" which interrupt this process.[25] The inference here is that an online intervention process is also time sensitive. The intervention cannot achieve much if the individual is already entrenched in violent extremism. It can only come in when doubt is already destabilising the particular radical trajectory one is on. This unstable period will only last until credibility is again found in the same or alternate idea.

The internet therefore allows space for an individual to remain in their current trajectory in a kind of *Lagrangian point* equilibrium as described by Grindrod and Sloggett. Many cognitive radicals are quite content with being "jihobbyists"[26] as Jarret Brachman would call them unless there are gradual pressures or tipping points that lead them to move onto more "real stuff". On the internet as explained earlier, sources of influence for a particular radical trajectory are far more copious and accessible that in the real world. This is why, in the CEOP model, one of the striking differences is that instead of an almost linear pathway, there are circular orbits that represent how one remains in a particular stage of online radicalisation unless these tipping points feature.

Grindrod and Slogget also propose an Agent Based Model (ABM) where agents represent individual activists, and they suggest tracking their activities.[27] Similarly, an online radicalisation adaptation would mean tracking the activities of key nodes that are propagators. Milestones in this tracking activity would be when followers become agents themselves and move closer to the violent extremist orbit. The initial step would be an ecosystem mapping of their social discourse in cyberspace. This

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[24] RSIS. "Monthly Informatics Report, Developments in the Bahasa Indonesia Websites." RSIS. http://www.pvtr.org/pdf/Terrorism%20Informatics/MonthlyReports/2013/TerrorismInformatics-BahasaIndonesia-April13.pdf. (accessed April 3, 2014), 8.

[25] Ibid, 4

[26] Jarret Brachman, "Global jihadism theory and practice" (London: Routledge, 2009).

[27] Ibid. 9,11

would include the key stimuli at each stage of their journey and noting key moments when their radicalisation steps up or down. This tracking of how the online radical evolves by analysing the linguistic markers in their narratives is a critical lacuna in the study of online radicalisation. Studies examining linguistic markers for violence have the potential to be further developed to examine the upstream inroads to radicalisation in general.[28]

Tipping points and Orbital shifts

It is now recognised that there are those who espouse radical ideologies and worldviews but may never manifest them in actual violent behaviour. A keener examination thus needs to be made between the process of radicalisation and what actually "tips" the individual towards actual violence.[29] Various disciplines in Social Psychology have attempted to elucidate the myriad factors leading to this elusive "tipping point". What is less emphasised are the factors that keep this individual at "equilibrium". This refers to the competing forces that on balance maintain the individual in the particular stage of radicalisation. The rationale for using circular orbits in the proposed model for online radicalisation emphasises how for every stage of radicalisation, there are competing forces that maintain that stage and are in "equilibrium". There are "tipping" points that upset this equilibrium at each stage of radicalisation that ultimately plummets the individual towards manifesting radical thoughts at the cognitive level in actual violent behaviour.

The idea of "tipping" points first came into being via the work of Morton Grodzins which explored why at a certain point white individuals leave areas that become dominated by non-whites when the number of non-whites reaches a certain threshold.[30] This was later expanded on by Mark Granovetter in his threshold model. In this model, Granovetter stated that individual behaviour is contingent on those who are already partaking in that behaviour. It is not purely a case of following others or about being radicalised by them. But rather the tipping point depends on the number of individuals who eventually ascribe to the act and is based on a cost-benefit calculation for partaking in the act or leaving it. The individual decides to join in or leave when it reaches this threshold point where the cost of partaking is low as compared to the benefits and vice-versa for leaving. Different individuals have

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[28] Katie Cohen, Fredrik Johansson, Lisa Kaati & Jonas Clausen Mork. "Detecting Linguistic Markers for Radical Violence in Social Media", *Terrorism and Political Violence*, 26:1 (2014) : 246-256.

[29] Andrew Hoskins, Akil Awan, Ben O'Loughlin. *Radicalisation and Media: Connectivity and Terrorism in the New Media Ecology.* New York: Routledge, 2011.

[30] "Metropolitan Segregation", 1957. Scientific American 197:33-47. Grodzins, Morton. "50 Years Ago in Scientific American: "Metropolitan Segregation"." Scientific American Global RSS. http://www.scientificamerican.com/article/50-years-ago-in-scientific-american-white-flight-1/ (accessed May 24, 2014).

Grodzins, Morton. The metropolitan area as a racial problem. Pittsburgh: University of Pittsburgh Press, 1958, 6-7. http://digital.library.pitt.edu/cgi-bin/t/text/text-idx?c=pittpress;cc=pittpress;q1=Urban%20Studies;rgn=works;rgn1=topic;view=toc;idno=31735039395458 (accessed May 24, 2014).

varying thresholds.[31] Social interaction models have since recognised that one's choices are at times dependant on the choices others they interact with make and this leads to a complex dynamic with "multiple equilibrium and tipping points".[32] This is why crowdsourcing is able to play such an influential role in the online space.

Hence in the proposed online radicalisation model there are orbits within orbits representing various online radicalisation stages one revolves around. More importantly, within each orbit we see many points of influence representing other like-minded individuals or simply narratives that support that worldview. If any of these significant points of influence leave the orbit, this will have an impact on the worldview of the individual in question. Thus a particular radical orbital trajectory gets destabilised not only because one or a few leave or contrary narratives appear but when significant individuals leave. Even when they do, there are others to take up the space, and the opinions and actions of the collective matters. This is why in the CEOP model influences are represented by the significant source one is following as well as many others in the orbital ecosystem.

In summary, going beyond "echo chambers", orbital shifts towards or away from extremism can potentially occur for three principal reasons. One is contingent on both the worldviews and actions of the others in the orbital ecosystem one is in. The other is dependent on the individual's varying impression of the significant gravity well one is following. Finally it involves an element of cost-benefit calculations for shifting an orbit. All these culminate towards an orbital shift.

Why ideas are more believable on the internet: The need for speed and persuasive half-truths

Countering online radicalisation requires an understanding of how certain aspects of internet-based communications can result in more persuasive and believable messaging and narratives. This has to do with how online information is processed by netizens, which results in convincing rhetorical fallacies, the preference for quick bite-sized information and the attraction towards crowdsourcing for information.

The internet is inherently structured for heuristic processing of information. There are two paths by which information is processed by the brain. It is either by the peripheral/heuristic route or the central/systematic route. Someone who takes the central route would prefer careful examination of argument in a systematic manner that would need to consecutively eliminate all erroneous arguments after considering the merits of each of them. This process would naturally take a long time and persuasion is difficult when one takes such a route. When someone takes the peripheral route,

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[31] Granovetter, Mark. "Threshold Models Of Collective Behavior." American Journal of Sociology 83, no. 6 (1978): 1420-1443. http://www.jstor.org/stable/2778111 (accessed May 25, 2014), 1422.

[32] Brock and Durlauf, 2001b; Glaeser and Scheinkman, 2003 in http://www.law.yale.edu/documents/pdf/Rothstein.pdf,

persuasion is a lot simpler as one does not consider all arguments.[33] Individuals often do this on the net due to the need for rapid information with minimal effort and also because of the way information is meta-linked to emphasise on a particular line of argument or information. Search engines inherently produce such a selection bias.[34] When this is interjected with emotively resonating arguments, there is the tendency for the individual to remain in this trajectory of thought.

Anders Breivik's 1515-page manifesto is a good example of how a narrative becomes seemingly persuasive and credible because of online characteristics. Breivik's manifesto also demonstrates how a network of disparate ideas can be weaved together on the internet to create the classical rhetorical fallacy of post *hoc ergo propter hoc.*[35] In this case bits of quasi-logical arguments are strategically weaved together to support an erroneous correlation or causal relationship that appears logical on the surface.

It is only when someone takes the time to look at the references and sources quoted by Breivik that it will become apparent that this entire manifesto is an enormous "cut and paste job" of slanted internet narratives that purport his worldview. This is something even he admitted to in prison.[36] Only careful scrutiny will reveal how strategically miring slanted information together with information from sources widely accepted as "mainstream" creates credibility and support for extremist views.[37] However, the impression created on someone who does not take the time to scrutinise the sources (even mainstream ones) for the slant, is that it is a well-researched piece of work that is true and validated. This is compounded when the reader becomes entrenched with the ideological slant. This process gathers momentum with each article leading onto the next in his "manifesto" until the reader becomes near immune to counter-arguments.

One possible reason for this would be that the extremist worldview has already been internalised with such constant and one-sided narrative exposures. The other reason would be the sheer effort it takes to find out facts contrary to what is reported in the manifesto. Many of the quotes, reported events, facts and figures mentioned including ones from mainstream sources that lend support to Islamaphobic ideas can be easily dismissed if one takes the time to research into alternative and moderate perspectives. To the internet reader, this would take too much time and effort. Furthermore,

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[33] Orlina and Desjardins, "Cyber on the Brain", 25

[34] Ibid, 39.

[35] "Post Hoc", Fallacy Files, http://www.fallacyfiles.org/posthocf.html (accessed April 15, 2014).

[36] John D. Stoll and Kjetil Malkenes Hovland, "Norwegian Mass Murderer Complains About Treatment in Prison." The Wall Street Journal, http://online.wsj.com/news/articles/SB10001424052702303393804579312681258521234 (accessed April 7, 2014).

[37] Some of the sources quoted by Breivik include news sources accepted by many as 'mainstream' such as the BBC (British Broadcasting Corporation) and MEMRI. (Middle East Media Research Institute).

young internet readers might be more inclined to heuristic processing of information and have an innate and enculturated trust of electronic sources of information.[38]

"Bite-sized" and "sticky"—The dominant feature of internet communication strategies

Akin to propaganda leaflets from the communist era, ideology in the internet is spread in bite-sized chunks. Schroedr *et al.* explains that,

> *A budding social movement, however, cannot expect that all potential members will be able to grasp fully the group's ideology. Thus, movement elites generally frame their group's core message in generalized ideological snippets, much like bumper stickers, that are easily communicated to their target audience. Given the 140-character limitation of Twitter messages, Twitter appears to be an ideal tool for broadcasting ideological snippets and framing grievances for delivery to a social movement's target audience.*[39]

This is key to understanding the orbital pathway model that will be subsequently described in this paper. The model suggests that insurgent consciousness is spread by means of these "bumper stickers" and this is a trademark of Web 2.0 communications, all of which produce an *ignoratio elenchi* argument that leverages on bits of "truth" to lead to a misdirected or irrelevant conclusion.[40] These little pieces of a "global" revolutionary conversation gain critical mass until a group gets mobilised in the real world or a single individual does likewise.

Malcolm Gladwell in his seminal work on "sticky" messages explored the characteristics of what makes a messaging strategy memorable and convincing enough to prompt one to act on the ideas being propagated. This has relevance to the on-going debate on what "tips" or triggers an individual from being a cognitive radical in the online environment to becoming a behaviour radical in the real world.

The "Stickiness Factor" creates a maxim for actual informational content and packaging of a message.[41] Gladwell explains that social networks and the charismatic traits of the entity attempting to

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[38] Orlina and Desjardins, "Cyber on the Brain", 26

[39] Smith, "The Emergence of Liberation Theology", 61; Glenn E. Robinson, "Hamas as Social Movement," in Islamic Activism: A Social Movement Theory Approach, Quintan Wiktorowicz, ed. (Bloomington: Indiana University Press, 2004), 129 & David A. Snow, E. Burke Rochford, Jr., Steven K. Worden, and Robert D. Benford, "Frame Alignment Processes, Micromobilization, and Movement Participation," American Sociological Review 51 (1986): 464–81 cited in ibid.

[40] "Introduction to Logic", Ignoratio Elenchi, http://philosophy.lander.edu/logic/ignoratio.html (accessed April 15, 2014).

[41] Malcolm Gladwell, "The tipping point: how little things can make a big difference" (London: Abacus. (Original work published 2000)), 2013, 89-13.3

spread a message can only go so far. The message fails if it is deemed unworthy of further dissemination. The stickiness factor requires the message to have a highly unique character that enables it to remain in the consciousness of the individual and create the impetus for it to be deemed worthy of propagation.[42]

Gladwell recognised that to codify the exact factors that will make the message sticky is difficult, and that the stickiness of a message is more likely to be understood by a process of testing and experimentation.[43] Gladwell describes how the message is seldom in the right mix for optimal persuasion the first time around. It takes a process of tweaking it in a number of iterations and reconstructing it via small subtle changes that makes the difference.[44]

As a framework for initiating a "sticky" message, Chip Heath and Dan Heath formulated six principles for making a persuasive message based on "Simplicity" (being simple but profound), "Unexpectedness" (being counter intuitive and surprising the audience by revealing a gap in their knowledge and then filling it), "Concreteness" (being precise and clear), "Credibility" (providing credentials and evidence), "Emotion" (leveraging on emotively resonating narratives) and "Stories" (exemplification via stories the individual can identify with).[45] Given the diverse variety of ideas in the internet, there is stiff competition for getting these ideas to "stick". Social media is a realm where messages need to be especially "sticky" given that the user would most likely give each post only limited attention and given the volume of alternate information and perspectives one has access to. This applies especially to the Web 2.0 social media environment where bite-sized information reigns supreme and only sticky messages that follow the principals described by Chip and Dan are likely to thrive.

Turning to online social networks for answers

Ressa also explained about crowdsourcing for answers and turning to the collective wisdom of the group, which is a dominant attraction of internet-based communications.[46] Crowdsourcing for answers essentially means leaving the answers to an undefined and generally large network of people. Following a set of significant nodes on the internet is a variant and extension of this idea of crowdsourcing which as a technique is aided by selection biases inherent in search engines. This is

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[42] Brad Hunter, "Tipping Points in Social Networks ." Stanford University, http://www.stanford.edu/class/symbsys205/tipping_point, (accessed April 10, 2014).

[43] Ibid.

[44] Ibid.

[45] Chip Heath and Dan Heath, "Made to stick: why some ideas survive and others die" (New York: Random House,2010) cited in J.D. Meier, "Six Principles of Sticky Ideas." Sources of Insight. http://sourcesofinsight.com/six-principles-of-sticky-ideas/ (accessed April 10, 2014).

[46] Ressa, "From Bin Laden to Facebook: 10 days, 10 years.", 108, 118

similar to what is commonly referred to as selective crowdsourcing.[47] The selective crowd in this case represents your collectivity of thought leaders for the topic concerned. An exemplification of this would be the phenomenon of "Fatwa shopping" on the internet where the individual selectively scans a variety of Islamic sources for scriptural rules and answers to life issues.[48]

James Surowiecki described how crowdsourced information is not necessarily less credible. He explains how, "Large Groups of People are smarter than an elite few, no matter how brilliant—better at solving problems, fostering innovation, coming to wise decisions."[49] For instance, Wikipedia if made into a book would be about 2.25 million pages long and would contain around the same number of errors as Encyclopaedia Britannica, which has a large bureaucracy to do the same task.[50] The tacit recognition of such characteristics by netizens reinforces their trust of electronic information.

There needs to be four criteria in place for effective crowdsourcing to occur.[51] All of which are present, concentrated and more robust in cyberspace as compared to the real world:

a.   There needs to be diversity of opinion in which each person has private information that one is willing and feels comfortable enough to share.

b.   There is independent thought where one is not driven by the coercive opinions of those around them. This is akin to the "ideal speech" situation that German sociologist and philosopher Habermas described. The internet in many ways approximates this ideal state.

c.   Decentralisation which allows for local specialisation and drawing on local knowledge.

d.   Aggregation mechanisms to turn private judgements into a collective decision. This essentially describes the internet.

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[47] Jason Schreier, "Selective Crowdsourcing: The More Experts, the Merrier", Home | TechNewsDaily.com . http://www.technewsdaily.com/2517-selective-crowdsourcing-science.html (accessed June 29, 2013).

[48] Richard Kerbaj, "Muslim youth 'shop around for fatwas online'.", The Australian, http://www.theaustralian.com.au/news/muslim-youth-shop-around-for-fatwas-online/story-e6frg6no-1111115210234 (accessed June 4, 2013).

[49] James Surowiecki, *The wisdom of crowds: why the many are smarter than the few and how collective wisdom shapes business, economies, societies, and nations*. New York: Doubleday, 2004 cited in Ressa, "From Bin Laden to Facebook: 10 days, 10 years.", 118

[50] Ibid.

[51] Ibid.

The Cyber Extremism Orbital Pathways (CEOP) model

The proposed CEOP model that is meant to explain radicalisation specifically over the internet is graphically represented in Fig 1. This inferential model takes into account the unique characteristics of the cyber realm and Web 2.0 communications that have been described in the earlier section. Namely, the phenomenon of turning to the masses for answers—crowdsourcing. Then there is the ease and availability of numerous similar or alternate perspectives for one to choose from given the density, volume and speed of information transfer that give access to such ideas. Counter-culture groups also leverage on the impression that "truth" resides on the internet by propagating the view that those in power forbid access to their ideas as they are correct and threaten them. They thus create "doubt" over mainstream accounts.

There is also the ease with which internet narratives are able to provide links to sources such as video clips or testimonies that provide "evidence" of their views. Social media is able to leverage on the fact that bite-sized information sells better and is more "sticky" especially to an audience that thrives on heuristic processing of information. On the internet, ideas get reinforced in online communities that create virtual institutions for those who share similar worldviews. Finally there is competition for ideas. When an idea loses resonance, there are plenty of other perspectives to choose from. While this might give the impression that the internet is an arena for cognitive "battles", one also needs to keep in mind how affective reasoning and resonance play an equally important role in which ideas or individuals behind those ideas are influential.
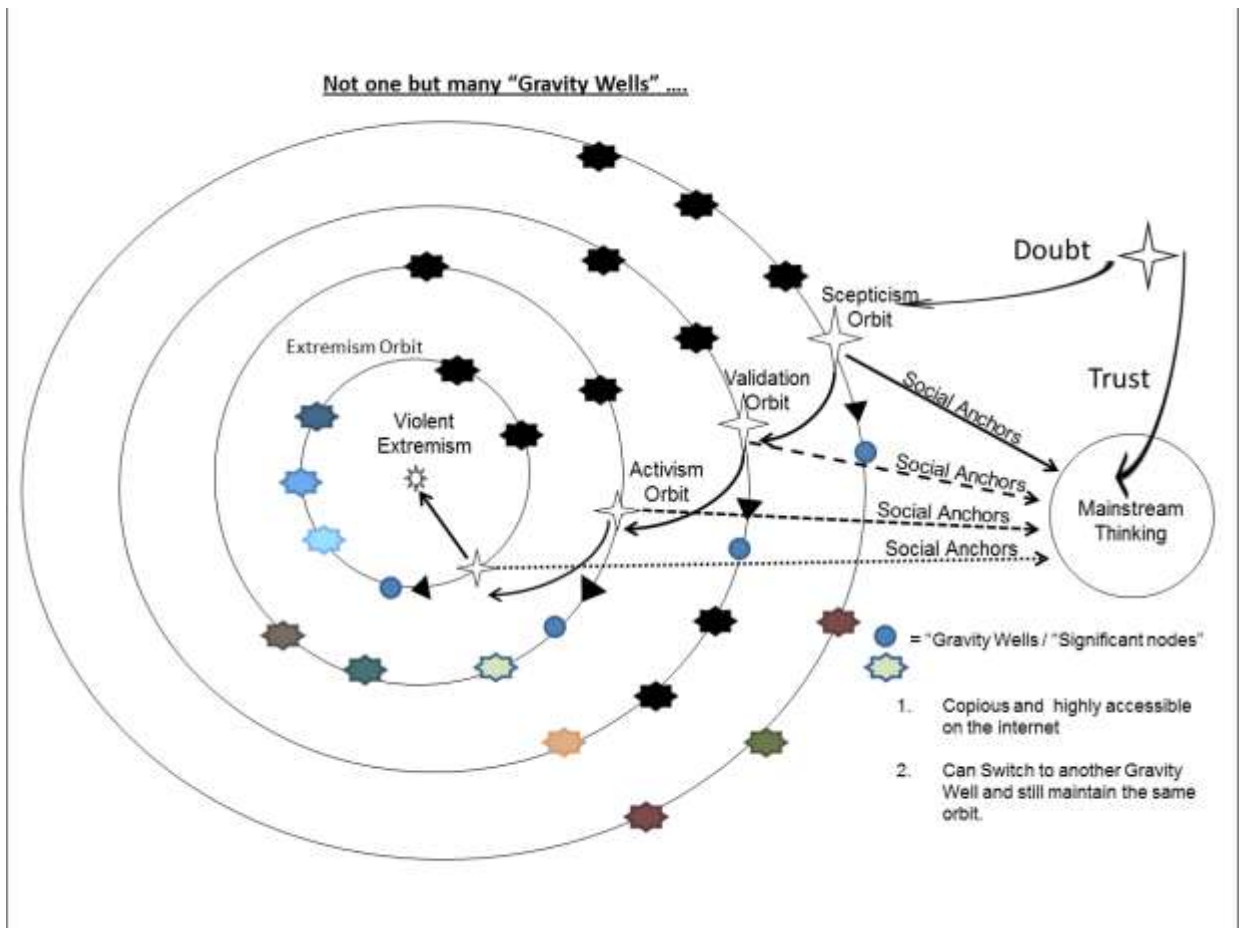
Figure 1: The Cyber Extremism 'Orbital Pathways' (CEOP) model

In the CEOP model, the individual (represented by the white star) remains in the "orbit" of the chosen counter-culture that fuels and reinforces this inherently sceptical mind-set. At the same time, given the diversity of information and influences on the internet, there are competing forces that pull the individual towards mainstream worldviews, other nodes that promote scepticism within that same orbit or towards inner orbits that are closer to violent extremism. These significant nodes or "Gravity Wells" as we call them can be influential individuals inside a social network forum with many followers or solitary ones who create resonating ideas wherever they operate. These "Gravity Wells" pull the individual into a temporal stable orbit in which the attraction of "social anchors" that draw one towards mainstream norms and values or more extreme orbits cancel out to create a stable orbital trajectory. However, given the diversity of tugs and pulls of opinions and ideas in cyberspace, this orbit can be transitory. If the gravity well of the sceptical orbit is not able to retain credibility or found lacking in any way, the individual will drop out of this orbit. One of the more pertinent orbital dislocators would be if the gravity well is found to not provide solutions or if the ones provided are deemed to be ineffective. In the case of the scepticism orbit, the individual might reach a stage where simple scepticism or having doubts without "proof" or acceptance of an explanatory idea is found lacking. Instead of passively being pulled away, one might then make the conscious choice to explore or ascribe to the merits of a deeper orbit.

This will pull the individual out of the gravity well of the scepticism orbit to the pull of gravity wells inside the validation orbit. The gravity wells in this inner orbit entrench ideas about the nature of the grievance or any proposed solution the longer one is exposed to gravity wells within this orbit. Validation here is a "truth" seeking process in which one permanently eliminates any alternative perspectives and becomes convinced about radical ideas as being the only unadulterated "truth" left. This can be a long-drawn process where the individual might eventually take on a role of propagator to validate radical perspectives for any new sceptic. If this role of "validator" is fulfilling enough, and barring any other "pulls", he or she will remain in this orbit reinforced by other "validators" and encouraged by the number of followers one is able to garner.

At some point, this validation orbit will also lose its resonance and be found lacking. This is primarily because the individual might feel the need to "do something" tangible about the situation instead of simply talking about it. He or she then spirals into the activism orbit. This kind of activism extends beyond mere validation of propaganda. It entails undertaking real world actions such as forming organised groups, public protests, etc. Online activism is a variant of such real world activism. The same competing gravitational dynamics as in earlier orbits again repeat themselves. It might reach a stage where non-violent activism is found to be ineffective or the pull of gravitational wells that propose more extreme ideas and violent solutions are found to be more attractive or seen to yield more tangible and realisable results.

The downward spiral then pulls the individual towards the extremism orbit where one entertains ideas promoting absolutist worldviews, linear non-critical thinking and, most importantly, advocacy of violent solutions. At this stage it is very difficult for outside orbits (activism, simply limiting oneself to seeking validation or exploring scepticism/radical ideas) to exert much counter influence to return one to an earlier lifestyle. This extremism orbit is maintained only until events or opportunities present themselves for the individual to undertake actual acts of violent extremism. As the progression moves towards inner orbits, the individual becomes more absolute and dialectical in reasoning and confines oneself to very selective worldviews.

It is to be noted that each orbit in this model does not have a singular "Gravity Well"/Significant Node. In cyber forums, they are numerous with each one competing against the other. Only one "Gravity Well" has been shown in each of the orbits in the CEOP model for illustrative purposes. More importantly, it is proposed that each individual in this model has the potential to also be a "Gravity Well." Often it is a competition between these "Gravity Wells" to gain prestige over the number of followers or "likes" they have. This competition to gain virtual status and accolades from virtual members becomes positively reinforcing and motivates them to remain in the counter-culture.

The individual in our model might remain a follower of a "Gravity Well" or a "Gravity Well" for the orbit in question for as long as this gratification or other motivations stay effective. This is why orbits were chosen to represent the pathways as opposed to linear representations. The orbits are meant to

illustrate that some remain cognitive radicals in their own respective orbits instead of moving onto becoming behaviour radicals in the real world. Thus, the move to subsequent orbits is not only a result of strong pulls into deeper orbits, but also because of diminishing returns from staying in one orbit and opportunities for status, escalation of competition and other self-gratifying rewards residing in deeper orbits. This does not discount the manipulation of a sense of altruism or the need to do some good that is also a fundamental motivation for those being radicalised. It all comes down to the intrinsic motivation that drives these "Gravity Wells" and those being drawn to them. Thus, moves towards the extremism centre in the model can also be the result of any motivation (self-gratifying or altruistic) standing a greater chance of being fulfilled within deeper orbits.

Factors influencing orbital shifts

What causes a shift in orbits? You do not leave an orbit unless: (i) as a result of affective reasons, there is resonance loss due to the failure of social affiliations or the inner orbit offers greater social affiliations; and (ii) cognitively the individual makes a conscious choice for instrumental reasons or because of epistemic rationality (simply put, it makes sense to them). Now think of what Malcom Gladwell spoke of when he talked about the "tipping point". Often, the idea that is persuasive, memorable and sells is the one that gives practical advice and is personal.[52]

This is in line with what Steven Box spoke about when he described how the option to deviate is based on actual practical resources such as skills, supply or social and symbolic support that makes one feel they are able to successfully carry out the act.[53] According to David Matza, the act has to be considered achievable or feasible before one plunges deeper. One then embarks on a process of technical preparation until a state of competence for realising the act is achieved and/or one cognitively assesses the act to be feasible.[54] With this in mind, compare a narrative that simply gives ideological statements about the situation in Syria to one that in addition to giving social and symbolic support to build confidence also offers concrete advice on how to get there and provides one with information on how to get the necessary skills and supplies. Finally the model takes into account the weakening or neutralisation of social anchors that kept one rooted to a particular social group and its associated worldview.[55]

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[52] Gladwell, "The Tipping Point", 98.

[53] Steven Box, "Deviance, reality, and society" (2nd ed. London: Holt, Rinehart and Winston, 1981) , 87

[54] David Matza, "Delinquency and drift" (Research program of the Centre for the Study of Law and Society, University of California, Berkeley. New York: Wiley, 1964), Chapter 6

[55] Sykes & Matza, "Techniques of Neutralization: A Theory of Delinquency" American Sociological Review, Vol. 22, No. 6 (Dec., 1957), 664-670, American Sociological Association, http://www.jstor.org/stable/2089195, (accessed Mar 9, 2014) The CEOP model incorporates David Matza and Gresham Sykes's idea of how a criminal 'neutralises' any feelings of guilt before engaging in deviant action. This is done by either, denial of responsibility, denial of injury, denial of the victim, condemning the condemners or appealing to higher loyalties. These same neutralisation techniques which make one rationalise their criminal act to be a correct course of action can similarly be applied to weaken any prior social bonds. Applying this same concept to extremists, one

It is also possible to jump orbits very quickly given what we know of the dynamics of online communities, speed of information absorption and resonance in cyberspace. Cognitive trigger events can also catalyse this entire process. Relativity of 'Gravity Well" strength plays a part here. If the pull and resonance of the innermost "extremist" orbit is exceptionally strong and is coupled with key cognitive trigger events, one might jump rapidly from the sceptics orbit right into violent extremism. While rapid stage clearance is also possible in the real world, it must be recognised that given the dynamism of the internet, stages/orbits can occur concurrently in the online realm. This means that someone on the internet can be experiencing equally strong pulls from all orbits from scepticism right up to extremism. The end state of violent extremism in such a case is likely to be rapid.

Online de-radicalisation and the CEOP model

Finally, the CEOP model provides a framework for determining possible modes or points of intervention for counter-radicalisation and even de-radicalisation (see Fig. 2). This requires a hypothetical projection of what can potentially influence one away from a particular orbital trajectory. While there are many "Gravity Wells" of counter-culture existing on the internet, there are also many that espouse mainstream ideas and even credibly counter extremist ones. At some points, depending on the virtual journey of the individual in cyberspace and where one spends the most time, there will be occasions when these mainstream "Gravity Wells" causes the netizen to have a "cognitive rethink". These mainstream "Gravity Wells" might also reinforce still existing but dormant social anchors that pull the individual towards mainstream views. It can also be a case where the social affiliations surrounding dominant "Gravity Wells" for that orbit lose resonance with the individual concerned. All this results in a retrograde pathway towards earlier orbits that is closer to mainstream views.

This hypothesised orbital pathway reversal can be as a result of a variety of reasons that range from internal conflicts to loss of credibility in the dominant "Gravity Well" for that orbit. "Cognitive Rethinks" can also come from "Gravity Wells" of an earlier orbit the individual left. In this case, the individual revisits the reasons for leaving the earlier orbit and upon experiencing the flaws of the inner orbit, might find the earlier worldview or experience to be better after all. For instance, one might move from the activism orbit back to one of validation if the activist networks, messaging and experience prove to be a disappointment. This might require the individual to seek new or re-validation of earlier ideas. If this fails one might go back to the scepticism orbit but this time being sceptical of extremist ideas and solutions instead. It needs to be noted that while such cognitive reversals are hypothetically possible, it is likely to get more difficult the nearer one gets towards the extremist orbit.

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might appeal to higher authorities such as a charismatic figure or religious leader to neutralise any attachments or loyalties to one's earlier social identity.
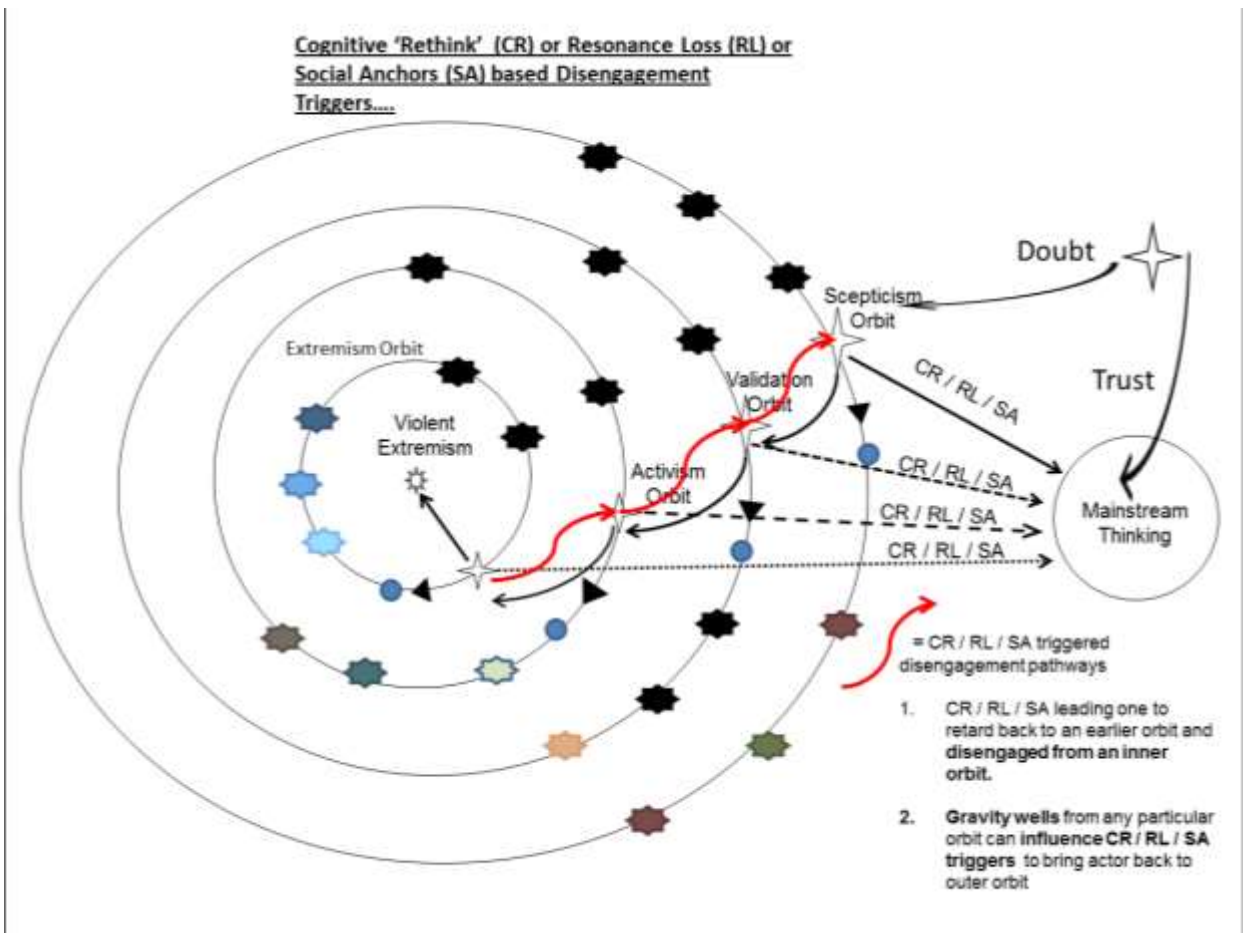
Figure 2: CEOP model showing multiple 'Gravity Wells' and retrograde move (in red) to earlier orbits due to Cognitive 'Rethink' (CR), Resonance Loss (RL) or Social Anchors (SA) based disengagement triggers.

Proposed Operational Countermeasures for Online Radicalisation

<u>Factors to consider</u>

The U.S. Department of Homeland Security commissioned White Paper on "The Internet as a Terrorist 'Tool' for Recruitment and Radicalization of Youth" cited findings from private sector entities who had conducted research into youth online behaviour.[56] They sought to better understand:

a.   The online marketing approach taken for the youth market

b.   What methods were utilised to evolve with young persons' changing needs and preferences

c.   What messages had particular resonance

d.   Recommendations on how to test the effectiveness of their messages

Based on these findings, their paper outlined the following to be kept in mind when devising any strategy to use for online counter-radicalisation: [57]

a.   *Reach out to youth where they are online:* Use established social networks that already resonate well with the segment of youth being targeted. This need not always be radical or extremist sites, but rather mainstream platforms utilising Facebook, Twitter or other social media sites. In the case of the Boston bombers, it was the mainstream Russian chat site, *V-Koktakte* rather than radical social media sites, such as *Kavkaz chat* that Dzhokhar Tsarnev used predominantly and where he mentioned that the centre of his interests were "Chechnya and everything connected with the Chechen Republic". In this mainstream site he posted messages sympathetic to the Chechnyan and Syrian causes. [58] [59]

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[56] *"On 19 February, 2009, HSI held a roundtable in Los Angeles, California with representatives from a strategic communications firm, Outside Eyes Inc., as well as the management and marketers of an internationally-renowned teen music group that has achieved its multi-billion dollar popularity almost solely through the Internet."* cited from Catherine Bott, Robertson Dickens, Jessica Moffitt, Erik Smith, Thomas Rowley and George Thompson Bott, "Homeland Security | Homeland Security and Studies Analysis Institute." The Internet as a Terrorist Tool for Recruitment and Radicalization of Youth, http://www.homelandsecurity.org/ (accessed May 29, 2013), 14, 18.

[57] Ibid 15

[58] Interfax. "Boston bombing suspect's account tracked down to Russia's VKontakte social network Boston bombing suspect's account tracked down to Russia's VKontakte social network | Russia Beyond The Headlines ." Russia Beyond The Headlines: Top Stories . http://rbth.ru/news/2013/04/19/boston_bombing_suspects_account_tracked_down_to_russias_vkontakte_social _25226.html (accessed May 29, 2013).

[59] Simon Shuster, "The Brothers Tsarnaev: Clues to the Motives of the Alleged Boston Bombers | TIME.com." World | International Headlines, Stories, Photos and Video | TIME.com., http://world.time.com/2013/04/19/the-brothers-tsarnaevs-motives/ (accessed May 29, 2013).

b.   *Take advantage of the viral nature of online content:* Viral marketing is a technique that facilitates and encourages people to pass along a marketing message. This can be done via social media platforms. The research by viral market researchers have shown that youth in particular pass along anything that is "entertaining and appealing" through the social media platforms. There are users who then add further content to this initial message and pass it along. These stories feed on themselves and get circulated through mainstream forums and not always extremist ones.[60] It is not so much the veracity of the content that creates the initial appeal but rather narratives that cause scepticism. Such narratives can also fall into the category of "entertaining and appealing" because of the controversies and excitement they generate. These messages that leverage on the ready pool of sceptics in social media have a great capacity to go viral. Messages may also go viral because of the ease of corroboration over the internet which allows one to find references that support the sceptical view. This creates a kind of "false consensus" that forms the impression that viral messages are indeed true and accepted by many.[61]

Another factor that probably contributes to messages going viral is alternate narratives about an event, which are sometimes never corrected or convincingly corrected in time. Conspiracy theories sometimes arise out of confirmation bias that skews one to favour information that validates their perspectives. People tend to have a preference for early information or illusory correlation leading to confirmation bias.[62] [63] The internet by its very nature offers an abundance of opportunities for such skewed perspectives. A demonstration of this can be seen by the number of conspiracy theories that have originated over the Boston Bombers incident in April 2013. One plausible reason for this was because there were a lot of unanswered questions or questions left inadequately answered when the incident first came to light. In the case of the Boston Bombings, the internet and social media offered an ideal platform for a lot of early conspiracy-based explanations or illusory correlations that were quick to fill the void left by questions left unanswered. These explanations naturally went viral. [64] This paper postulates that this attribute of the internet for viral messaging can be conversely manipulated for counter-radicalisation purposes. But in this case, non-infantilising and credible explanations to alternate

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[60] Boaz Ganor, Katharina von Knop and Carlos A. M. Duarte., "Hypermedia seduction for terrorist recruiting" (Amsterdam: IOS, 2007), 259

[61] Magdalena Elzbieta Wojciezak, "Computer-Mediated False Consensus: Radical Online Groups, Social Netwroks and News Media." *mass communication and society* 14 (2011): 527-546. http://www.tandfonline.com/doi/abs/10.1080/15205436.2010.513795#preview (accessed May 28, 2013).

[62] L. Chapman, "Illusory correlation in observational report". Journal of Verbal Learning and Verbal Behaviour, 6 (1) (1967): 151–155.

[63] Raymond S. Nickerson,"Review of General Psychology" Vol. 2, no. 2 (1998): 175-220, http://psy2.ucsd.edu/~mckenzie/nickersonConfirmationBias.pdf (accessed April 9, 2014), 187.

[64] Amanda Holpuch, "Boston Marathon bombings: rounding up the conspiracy theories." theguardian.com. http://www.theguardian.com/world/us-news-blog/2013/apr/24/boston-marathon-conspiracy-theories (accessed April 9, 2014).

narratives are put forth subtly in a timely, memorable and impactful manner. Such messaging has the potential to go viral on the internet if we can get the framing right. Further research in this area is likely to significantly enhance current online counter-radicalisation initiatives.

c. *Authenticity is crucial:* Credibility, interest and impact is quickly lost, especially with a younger audience if the message is found to be superficial, placatory and contrived. There is a need to not underestimate the ability of youth to determine the authenticity of the message and messenger. When a very infantilising posture is taken with the counter narrative or if the message is too "preachy" the young audience is likely to react negatively. Furthermore, it is important to know the cultural norms and appeal of the audience being targeted so that the messaging would also be crafted to take into account nuances and memes that resonate with them.

d. *Develop and utilise feedback mechanisms:* Response time to any comments or narratives impact on the credibility of the rhetor. If the rhetor (the protagonist of the conversation) is able to respond quickly to the message in real time, this results in a chain reaction of comments and passed on messages. This immediacy of feedback gives the rhetor the ability to gauge reactions to his/her posts or accompanying videos and alter them accordingly. The rhetor is also able to handle any negative criticisms in real time and reinforce any positive ones. In this way, the rhetor is able to achieve a direct and lasting connection with the audience and followers.

e. *Respond positively and fluidly:* The rhetor is able to gauge the effects of one's posts and alter or craft them more effectively in subsequent posts. Formulas for positive responses are replicated. In the light of any criticism, a "positive redirection" approach of heavily emphasising on positive aspects of an argument is taken.

Proposed Operational Strategy

Based on the above suggestions, this paper proposes a broad strategy for online counter-radicalisation. Put simply, the strategy involved would include neutralising the sources of the radical contagion on the internet, namely the key/ prime "gravity wells"/influential nodes. This can be enacted via a three-stage process:

a) *Identification*: This entails mapping the ecosystem of mainstream social media hubs where influential online radical personalities and especially those who appear to be swaying towards radical thought exist.[65] A lot of extremist discourse can happen on mainstream social media

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[65] E.g. Alternate media sites on Facebook.

platforms where the initial forays into extremist thinking take shape.[66] As such, early intervention for radicalisation is best situated here. We focus on such upstream hubs, as clearly extremist ones are more likely than not to have individuals who are too far-gone down the extremist path for any kind of intervention strategies to be useful. While this might seem to be akin to giving up on such individuals, given finite resources, it would be better to focus such resources on those for whom intervention would stand a better chance of working.

b) *Tactical discourse analysis*: This would involve content analysis of the discourse and recruitment strategies that the hub is using to attract followers. More importantly what are the issues being raised and how are they being portrayed. Any form of content analysis would first require coming up with a "coding frame" which will serve as the template to delineate the various categories of issues and recruitment strategies. With enough time spent analysing the content, this coding frame will evolve and provide an insight into the universe of extremist conversational narratives and emerging themes.

c) *Doubt seeding*: Direct confrontational narrative attacks have only resulted in attrition in which the protagonist will come prepared with credible counter arguments or would himself or get his followers to block/bar the attackers from the forum. Subtle doubt seeding in social networks would involve actual participation in mainstream forums to plant doubts in the hub's narrative. This stage is extremely difficult and requires multiple attempts before some form of success is realised. However, social media forums as in the real world can be capricious with the mood of the forum swaying according to the gravitational lure of the dominant hub. Knowing when to cast doubts is as important as the type of doubt to seed. Testing the appeal of counter-extremist messaging and iteratively re-designing them from lessons learnt will be an evolving process until it gets established.[67] There needs to be more research in refining this operational strategy before it can be employed.

d) *Other non-direct disabling of extremist hubs*: This can include strategies that block the hub from mainstream social media platforms (a technical solution), tweaking of search engines to divert from extremist content (again a technical solution) or discrediting the ideas of the hub via alternate platforms which are established and stable. This method would not be able to pull away followers of extremist hubs but would inoculate new individuals from the tactics and flawed reasoning of these hubs. Again the discrediting would have to be very specific to the exact issue and tactic the hub is utilising. Given that the source of the problem to some extent is

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[66] *"According to the Wiesenthal Center, personal blogs as well as* <u>*mainstream social-networking sites*</u> *such as Facebook, MySpace, YouTube and Twitter are easily flooded with racist and terrorist-related content."* cited from Jesse Solomon, "Hate speech infiltrates social-networking sites, report says." CNN. http://edition.cnn.com/2010/TECH/03/15/hate.speech.social.networks/ (accessed April 9, 2014).

[67] Ganor et. al "Hypermedia seduction for terrorist recruiting", 259

a result of the characteristics of the cyber environment, tech-driven/tech-inspired strategies might be able to yield better gains in the short term.

The implementation of such a strategy of disabling "Gravity Wells" is bound to be fraught with complexities, become time intensive and require the sharing of resources. The greatest problem might be finding the right interlocutors to seed such doubts online. While such an effort might require time to develop, it will have far-reaching consequences. Such a strategy can only be taken with the realisation that given the intensity of online radicalisation, there are no quick fixes.

Conclusion

This paper has outlined a radicalisation pathway model specific to the online realm. The inferential CEOP model is derived from factoring the dynamics and characteristics of the internet (i.e., crowdsourcing, facilitating heuristic processing, edited and goal directed communication, the diversity and copious amount of information and more importantly alternate views that feed any counter-culture) that have changed the way we process information. The key aspects of this model lie in the influence of multiple significant nodes / "Gravity Wells" and the recognition of diverse and competing forces on the internet which pulls in multiple directions. This demonstrates how one stays a cognitive radical unless cognitive, affective or social pulls cause one to move out of their current "orbit". It is predicated on the fact that the starting premise of any counter-culture is scepticism which can degenerate into seeking validation of extremist ideas, activism as an outlet and eventually espousing the extremist worldview with the intent to engage in violent extremism. Correspondingly, proposed online counter-radicalisation strategies would entail a system of identifying influential online personalities (gravity wells) and embarking on a system of discrediting their ideas subtly (doubt-seeding) on mainstream forums, which they leverage on as well. Such strategies are likely to have better yields on mainstream online platforms and on "fence-sitters" who are making the initial forays towards extremism.

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