PART ONE

Machina ex deo

AI and the future of NHS Talking Therapies

What sort of social world is being built as a result of data colonialism. What will count as social knowledge in that world, and what older forms of social knowledge may drop out of the picture? Furthermore, what do those changes mean for social inequality and social justice?[1]

An AI therapist can access your cellphone, laptop, personal data, emails, all-day movement, and routine, making it more efficient in understanding you and your problems. Knowing problems in depth gives an AI-therapist advantage over the usual therapist.[2]

We made the world uninhabitable for ourselves and it can only be inhabited by robots and androids.[3]

Not withstanding a long history of fascination with humanoid machines and artificial intelligence,[4] there is surely an awful significance in the fact that one of the most soulful encounters between human beings is being handed over to the dead embrace of algorithms and machine learning. Most psychotherapists will baulk at the idea of cloud-based data caches and the algorithms of software platforms supplanting the interpersonal relationship of therapist and client. But, just as the colonisation of psychotherapy by the neo-Taylorism of short-term behaviouralism has become normalised as NHS talking therapy,[5] its natural offspring, AI psychotherapy, has arrived in town. Developed and owned by private companies, it is supported and celebrated by the NHS in the UK. AI is set to rapidly colonise the landscape of 'treatment at scale' for capitalism's self-imposed mental health pandemic.

Increasingly, psychotherapy as an open, person-to-person, encounter is becoming the privilege of the few who can afford professional fees. For the well-being of the many, formulations of the algorithm are firmly in the ascendent. Most people with an average income or less, who are in need of psychotherapy, are referred to short-term behavioural therapy provided by NHS primary care. The data being harvested from NHS clients – something close to 10 million sessions every year – is currently providing the raw material for the development of AI therapy. Over the next few years, talking therapy for most people in the UK, and around the world, will be conducted by machine and algorithm. Its primary beneficiaries will be big data companies and the interests they serve.

Onboarding AI therapy (AIT)

Artificial Intelligence is a broad term for the organisation and analysis by computers of digital data, framed towards predetermined questions, problems and solutions.[6] As we will see, the framing will inevitably take place within a politically and theoretically contentious environment. For example, if the question were what sort of interventions by a therapist best facilitate the recovery of someone suffering depression, words like interventions, facilitate, recovery, suffering and depression all beg questions of definition and meaning which are politically textured. At root, any framing of AI therapy will be based in a theory or theories of the mind. The only candidates currently for machine-learnt psychotherapy are cognitive behavioural therapy (CBT) and related behavioural therapies, whose focus on the symptoms rather than the underlying dynamics of psychological life lend themselves to the taxonomies of digital analysis and machine learning.

AIT, like all artificial intelligence, needs large collections of data. It requires data about the symptoms, diagnosis, treatment and outcomes of a large population of clients. It needs details about the theories, techniques and interventions employed by practitioners; it needs information about the language and phraseology of exchanges between therapists and clients; and ideally it needs information about each client's socio-economic background – age, class, gender, income, ethnicity – if it is going to learn about, and tune its interventions more closely to, the diversity of its population.

By analysing patterns of correlation between diagnosis, content and language in sessions, and measured outcomes of 'improvement' and 'recovery', AI can become a learning system able to develop increasingly sophisticated facsimiles of human responses to each client's communications in the service providers' definitions of improved mental health.

The NHS Talking Therapies service has been collecting and codifying most of the databases listed above since its launch as the Improving Access to Psychological Therapies (IAPT) service in 2008.[7] alongside person-to-person sessions, it has been providing online digital therapy for several years in the shape of video sessions, websites, emails, apps, text messaging and digital platforms like Silvercloud.[8] What has been missing from their data is detailed language analysis of individual sessions, without which the simulation of a personal therapist, who is relating to clients in the moment and responding to them as if in the flow of an intelligent and spontaneous conversation, will remain crude and generalised. However, among the private providers of NHS Talking Therapies this is beginning to change. Computer analysis of recorded NHS therapy sessions is becoming the raw material of AIT for profit.

At this stage, many of the parameters of AIT's 'decisions' will be set and adjusted by the framing inputs of human practitioners and technicians. However, as the databases grow over time and the feedback loop of machine learning matures, the apparent spontaneity and sophistication of the AI therapist's interactions will grow towards an appearance of possessing the full repertoire of a human person.

In the process, however, behavioural therapies and AIT will be progressively hollowing out the cultural fabric of society, recoding the languages of existential suffering, unconscious meaning and intersubjective creativity, towards a more 'psychopathic' and transactional reading of human intersubjectivity.

"What does the app want?"[9]

AI-assisted apps for common mental health issues and well-being have mushroomed over recent years. In 2021, the American Psychological Association estimated that there were 10,000 to 20,000 well-being digital apps.[10] The development and use of mental wellness apps peaked during the Covid 19 outbreak, and has declined slightly since. The vast majority of apps are products of the private sector. "The mental health apps market size was valued at $5.05 billion in 2022 and is projected to grow from $5.72 billion in 2023 to $16.50 billion by 2030."11 North America has the largest share of the market (37%), followed by Europe (29%) and SE Asia (23%).[12] The majority use simple multiple-choice symptom identification and measurement, and offer pre-programmed or rule-based advice and exercises to their users in response.

More sophisticated platforms make use of generative AI, perhaps via avatars, and can construct apparently bespoke responses to app users' inputs. The parameters of the machine responses are still programme rule bound. Others like Wysa,[13] recommended by the NHS, do not use generative AI, but do make use of interactions drafted or approved by human therapists. "Wysa supports patients through the NHS pathway starting from prevention support in the community, through interactive e-triage, waitlist support, AI guided CBT practice and relapse prevention."[14]

NICE has recently approved several apps for anxiety and depression using a combination of AI, supported by access to CBT-trained high- and low-intensity practitioners of Talking Therapies.[15] NHS staff have been recommended six apps to help with their own mental health.[16] NHS mental health trusts all list recommended mental health and well-being apps, and one of the primary activities of the 15 members of the Health Innovation Network is the development of partnerships between private tech providers and the NHS.[17]

The march of the machines I

The gold standard for AIT is the development of autonomous conversational agents (CAs). "Conversational AI refers to the technology that integrates artificial intelligence, natural language processing (NLP), and machine learning (ML) to make chatbots smarter and capable of having more human-like conversations. Conversational AI agents get more efficient at spotting patterns and making recommendations over time through a process of continuous learning, as you build up a larger corpus of user inputs and conversations."[18]

CAs are rapidly incorporating new research in emotional and empathy AI, sentiment analysis, personalisation and machine learning of human-like character and personality.[19] The prerequisites of CA therapy are the languages of therapeutic theory, techniques and therapist/client exchange.

> *Recent advancements in artificial intelligence (AI), such as natural language processing (NLP) and generative AI, have opened up a new frontier – AI-*

based CAs. Powered by NLP, machine learning and deep learning, these AI-based CAs possess expanding capabilities to process more complex information and thus allow for more personalised, adaptive, and sophisticated responses to mental health needs.[20]

NHS Talking Therapy is travelling down the road of partnering with private providers towards conversational agent AI therapy.

ieso Digital Health

ieso Digital Health is a UK company, providing talking therapy to over 25 NHS trusts.[21] The company is based in Cambridge and specialises in digital messaging or 'typed' therapy.[22] Therapist and client never meet, either in person or on video screen. They exchange text messages via the IESO app.

Formerly operating as Psychology Online, ieso (formerly spelled Ieso) negotiated its first contract with the NHS in 2013.[23] By 2018/19 it was receiving 8,500 referrals across the country, increasing to 13,940 in 2020/21 during Covid 19. In 2021, in a second round of venture capitalism investment, ieso raised $53 million to expand its digital health and well-being activities in UK and its more recent venture into the US market.[24] The company is currently developing partnerships with health insurance companies to provide AI therapy in the US.[25]

Its current board includes digital health start-up investors, its head of US marketing, investor directors, a global science and technology strategist, an Artificial Intelligence Officer, but no practising psychologists, therapists or other mental health professionals.[26]

"ieso has built one of the most impressive data assets I have seen in the space with their text therapy data set," said Stephen Bruso, an investment partner at Morningside. The data set is one aspect of ieso he finds most attractive as an investor, and called it "unprecedented".[27]

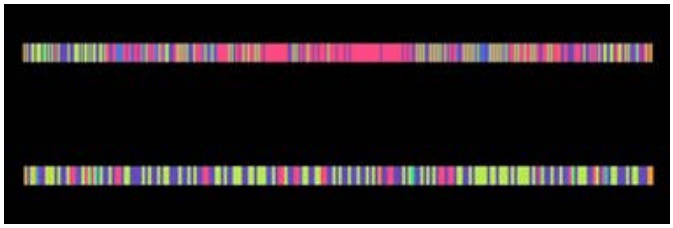
ieso boasts 700,000 hours of clinical data accumulated from its NHS therapy patients, which it describes as its unique database for developing AI-led innovations and improvements in evidence-based therapy.

For over a decade, ieso has been one of the largest providers of online, AI-enabled, human-delivered therapy within the National Health Service's (NHS) globally recognised Talking Therapies programme.

Through our award-winning digital platform, ieso has delivered therapeutic interventions to 125,000+ people with over 700,000 hours of treatment provided. We use a typed modality which captures, with permission, the exchange between a therapist and patient all in an ISO27001-compliant manner.

Coupled with session-by-session progress measures, ieso has a globally unique, de-identified dataset that we analyse to increase the quality and effectiveness of therapy. This dataset not only improves our scientific knowledge of mental health, but drives technological innovation to improve access to care, lower costs, and by personalising treatments – deliver better outcomes for patients."[28]

In order to develop AI conversational agents that can conduct a therapy session independently of a human therapist, the company says it has so far analysed over 20 million therapy language events – a core requirement for the CA's large language models (LLMs). This is its 'professional training'. In his 2020 TED talk,[29] Andy Blackwell, Group Chief Science and Strategy Officer, offers a visual representation of the kind of session-by-session language analysis ieso is programming into its machine-learning processes.



Timeline charts of two ieso text-based talking therapy sessions https://youtu.be/ZkTvw3usMw4?si=woj_sjZJtz9tkHgk (12 mins in)

Blackwell explains that the colour coding of each 15-second segment of the 60-minute session indicates the therapeutic effectiveness of the exchange between therapist and client, translated from text to bar chart by "deep neural network" technology. He calls the green and yellow segments "chit-chat", necessary and valuable at the beginning and end of session but ineffective therapeutically as a session progresses (so, see for example the lower bar). The pink and red are sections of the session where the practitioner is using structured therapeutic techniques and adding value to the treatment (see the upper bar). He explains that one of the techniques employed in the upper timeline is called cognitive restructuring – "You may not be the root cause of what's going on for you".[30]

The effectiveness of each and every session, as with all NHS Talking Therapies courses of treatment, is

measured through one of the service's behavioural self-assessment inventories, like the nine questions of the Patient Health Questionnaire (PHQ9) for depression or the General Anxiety Disorder Questionnaire (GAD7) for anxiety; a short series of tick-box answers to the repeated questions about the severity of symptoms.[31] Movements in the scores accumulated over a course of treatment (NHS Talking Therapies averages eight sessions) measures improvement, recovery or deterioration in the mental health of the client.

ieso, then, is putting together the key elements of a fully automated conversational AI therapy service. Cognitive behavioural therapies provide the codifiable theoretical and technical model of therapeutic practice and language. The LLM database of millions of language events, harvested from recorded NHS Talking Therapies sessions and analysed through natural language processing, provide the raw material for cumulative machine learning. The session-by-session record of outcomes completes the circle of continuous generative learning, deepening and refining the algorithms of the AI therapist at both a population and an individual client level.

The march of the machines II

ieso is not the only private sector actor developing AIT. In a recent survey of the field in *npj Digital Medicine*, 32 of the 35 examples of AIT featured CAs as independent stand-alone systems.[32] Other examples of partnerships between tech companies and NHS Talking Therapies client data include Limbic Access, Trent Psychological Therapies Service (Trent PTS) in contract with the US firm Lyssn AI, and digital services recommended by the NHS, including Silvercloud and Wysa.

Limbic Access and Limbic Care

Limbic Access is a conversational artificial intelligence chatbot which is used "to assist both patients and mental health practitioners with referral, triage, and clinical assessment of mild-to-moderate adult mental illness".[33] It claims to be used by 40% of NHS mental health services, to have been built by a UK-based team of therapists, physicians and PhDs in the field of computational psychiatry, and to have served over 280,000 referrals.[34] Among other benefits to clinicians, it claims to deliver automated therapeutic content, stratify risk with automatic risk identification and flagging, and engagement of patients with LLM-based CAs. Limbic Care is a conversational agent whose goal is to encourage and maintain patients' engagement in their treatment between therapy sessions.[35] Like ieso, Limbic is currently expanding into the US and European markets.[36]

Trent Psychological Therapies Service

Trent PTS provides NHS behavioural therapies in Derbyshire and Nottinghamshire. It began life as Trent CBT Services Ltd in 2004.[37] It received 31,800 NHS Talking Therapies referrals in 2022/23. It claimed to be doing 12,000 sessions a month in 2021.

Trent's partnership with Lyssn was contracted in 2021.

> *Lyssn is a US company. "Its unique AI platform offers secure recording and sharing of therapeutic sessions, accurate speech-to-text transcripts, and actionable AI-generated insights on the application of evidence-based treatments such as Motivational Interviewing and Cognitive Behavioral Therapy. Lyssn is already in use in behavioral health practices, universities, and telehealth companies across the United States. This collaboration with Trent marks the first implementation of the Lyssn platform within the United Kingdom".*[38]

Like ieso, Lyssn records millions of language events, including the labelling of 1.6 billion words, analyses and correlates language events to session outcomes, and is intended to teach human therapists to use effective language and move its customers' services towards conversational AI therapy.

Silvercloud and Wysa

Silvercloud, formerly a Dublin/UK private provider of digital therapy, was taken over in 2021 by Amwell – American Well.[39] Since 2012, it has delivered 12.6 million hours of online therapy, mainly to NHS patients. "We're proud to have empowered over 1 million lives." Silvercloud has been used by over 75% of NHS Talking Therapies services across England. In 2021, it partnered with Microsoft to advance its AI research and development, and to provide a cloud base for its data.[40]

Wysa is also an NHS Talking Therapies provider using a combination of AI and CBT self-help triage, digital information/exercises and signposting. It too has access to thousands of hours of exchange between platform and NHS clients, "integrated with NHS Talking Therapies Electronic Patient Record Systems".

Both Silvercloud and Wysa are close to introducing next-step developments towards independent conversational agents.

Wysa visualises its future like this:

> *Therapist-assisted AI CBT programmes created by psychologists for common mental health problems such as anxiety or low mood; each programme has 6-8 modules, with each module including a psycho-educational video, conversational practice of an evidence-based CBT technique, and daily check-ins to improvement engagement; clinical recovery and all mandatory NHS Talking Therapy KPIs captured and contribute towards NHS mandated targets; integrated with your Electronic Patient Record (EPR), so all data and insights sit within your EPR, reducing the burden and amount of work for your clinicians and ensuring data safety.*[41]

And Microsoft/Silvercloud describe their collaboration on AI therapy as follows:

> *At Microsoft, we are collaborating with SilverCloud Health, the leading digital therapeutics platform for mental and behavioral health, to improve mental health services using AI technology. This collaboration aims to jointly explore how AI can be used to enhance SilverCloud Health's digital mental health platform and to deliver digital CBT-based programs, making treatment more accessible. In tandem with this collaboration, researchers at Microsoft Research Cambridge are investigating probabilistic machine learning frameworks to understand and meet people's individual needs effectively with online CBT. We hope that this project will specifically lead to interventions that increase the quality of care for people living with mental health difficulties.*[42]

II Ready for the robots

Artificial intelligence is growing up fast, as are robots whose facial expressions can elicit empathy and make your mirror neurons quiver.[43]

NHS Talking Therapies is primed for the advance of machine therapy. It already has the three prerequisite ingredients for automated psychological therapy – public/private partnership, big data and assembly-line organisation.

Public/private partnership

It seems inevitable that more and more NHS Talking Therapies private providers will jump on the bandwagon of using their NHS data to develop machine learning and AI agents, and presumably their algorithms and software will be sold back to the NHS. For big data corporations, AI and digital mental health treatments are a marriage made in heaven.

> *Research shows that nearly 1 billion people world-wide need psychological therapy, but most never know where to access it and an immense number can't afford it. Another analysis that backs the concept of Microsoft AI-based therapy is that many people are more comfortable expressing themselves to a machine than to a person. So, it has three supporting arguments that validate that it would be a success. 1. It has a massive potential market of 1 billion people. 2. It is going to be way cheaper than already present solutions. 3. The potential buyer feels more comfortable with it compared to other solutions.*[44]

For the NHS, the inadequacies of mental health services are an ongoing failure, for which digital innovations are regularly heralded as a major source of salvation.[45]

> *There is a demand-supply gap in mental healthcare, seen in growing waiting lists, inequalities in health, and in access to care, treatment and support. More people than ever are seeking help for their mental health, and this is likely to continue for some time following the collective trauma of COVID-19 and the cost-of-living crisis. Shortages of mental health workers of all types have held back expansion and reform, leaving services in persistent crisis mode... There is also a growing need for greater action and investment upstream in prevention, early intervention and community-based care to improve the mental health of the population and improve care and support services.*
>
> *Digital technologies, platforms and applications are a reality within the delivery of mental health care pathways in England, and have an important role to play in improving the mental health of the population and the delivery of health services.*[46]

In its recent report to the Government on *The digital future of mental healthcare and its workforce*, the Topol Review champions the development of digitalisation for the NHS.

> *Digital healthcare technologies, defined here as genomics, digital medicine, artificial intelligence (AI) and robotics, should not just be seen as increasing costs, but rather as a new means of addressing the big healthcare challenges of the 21st century. The UK has the potential to become a world leader in these healthcare technologies and this Review anticipates how technological innovation will impact the roles and functions of healthcare staff over the next two decades. Our review of the evidence leads us to suggest that these technologies will not*

replace healthcare professionals, but will enhance them ('augment them'), giving them more time to care for patients. Some professions will be more affected than others, but the impact on patient outcomes should in all cases be positive. Patients will be empowered to participate more fully in their own care.[47]

Pundits of digitalised healthcare argue that the NHS, private tech companies and patients are all winners. Digital is cheaper, faster and more 'scaleable', requires fewer staff, creates profit and investment opportunities for the private sector, offers more people more access, is developing an evidence-base demonstrating it is effective, and gives patients more control over their own treatment and information.

In fact, NHS partnerships with private tech companies have had a troubled history. The National Programme for IT was created in 2002 and failed to produce an integrated health record database by 2006. Seven years later, NPfIT was found to cost more than the existing paper record keeping. By 2018, the NHS was still struggling to move into a paperless world, and was in trouble with its failures to maintain the confidentiality of its patients' medical information.[48]

Jeremy Hunt and Matt Hancock were both technophile ministers of health. In 2015, Hunt celebrated 'Dr Google' and his bag of health apps. "The future is here … 40,000 health apps now on iTunes… this is Patient Power 2.0."[49] Hancock championed Babylon Healthcare, a UK AI tech service which promised GP consultations by mobile phone – including, through a partnership with an NHS GP practice in Hammersmith, to younger NHS patients all round London. Babylon went bust after two years of increasingly inefficient and sometimes dangerous practice.[50]

With the Covid outbreak and the massive migration to online healthcare, the NHS's interest in digitalisation, health apps and AI rapidly took off, the myth of 'technosalvationism' overriding any issues of confidentiality and public sector ownership of patient data.[51]

NHS mental health services have always been on the cutting edge of privatisation and outsourcing. Before Covid, 30% of psychiatric hospital capacity was private, run by companies like the Priory and Cygnet Healthcare.[52]

Currently, there are 10,123 private mental health beds in England (the NHS has 17,610) and private mental health providers earn 91% of their income from the NHS.[53]

NHS Talking Therapies is a significantly privatised or outsourced service. Almost 50% of providers are private companies and charities, who receive a fifth of NHS Talking Therapies referrals each year.[54] At the same time, the recruitment and training of therapists is growing significantly faster among the private providers. Between 2019 and 2022, the NHS therapy workforce grew by 37%, while the non-NHS sector grew by 84%.[55]

The service's online provision has been growing rapidly since Covid. In 2021-2022, 650,000 online sessions were recorded.[56] It is private NHS Talking Therapies providers who are developing AI therapy – based on the data of NHS patients' recorded sessions. The machine learning and algorithms developed and owned by private providers, cloud platforms and software developers will be based on NHS data and sold back to the NHS as conversational AI therapy.

Big data

IAPT/NHS Talking Therapies describes itself as an "evidence-based"[57] mental health service, offering "NICE-recommended psychological therapies at the appropriate dose matched to the mental health problem, and the intensity and duration of delivery… designed to optimise outcomes".[58] The evidence-based label in fact describes the political monopoly of its behaviourial bias, ring-fenced by NICE to exclude comparable evidence from other therapy modalities.[59] It also refers to shedloads of data the service has been collecting on its clients, its treatments and their outcomes since its roll out since 2008.

NHS Talking Therapies' monthly and annual reports record over a million data points on the social and diagnostic characteristics of each client, the type and duration of the therapy they receive and the outcome of the therapy. It has a legislative duty to provide statistical evidence of three targets – the access it is providing, waiting times, and outcomes of treatment.

In a unique exercise in public transparency, IAPT ensures that almost everyone (99%) who has a course of treatment has their anxiety and depression measured at the beginning and end of treatment. Service outcomes are available on public websites (see NHS Digital IAPT reports and Public Health England's Profiles Tool). Learning from this data has improved understanding of how to best deliver the therapies and has enabled services to progressively improve the help they provide to patients.[60]

It clearly sees its data as one of its main assets, but is it offering evidence of the efficacy of talking therapies or, solipsistically, evidence that it is evidence-based?

NHS Talking Therapies annual reports show, for example, that each year in England as a whole, only two-thirds of referrals start a course of treatment, and only one half of those who start actually finish. Yet the service claims a recovery rate of 50%. The real recovery rate, defined on its own terms, is actually less than 25%. At the same time, its access target for 2022/23 is to offer therapy to 25% of adults suffering from common mental health disorders. It actually reached 15%. The service disguises its waiting times by extending the wait between the assessment, which it defines as the start of treatment, and the second session of a course of treatment.[61]

ieso plays this numbers game too. It claims that it is one of the largest providers for the NHS. It is actually 46th out of 140 providers. In the ieso video, referred to earlier, Andy Blackwell talks about their recovery rates improving from 52% to 60% between 2015 and 2019, thanks to their research and fine-tuning of service. According to NHS Digital, however, its recovery rate for 2018/19 was actually 39% of referrals who started therapy. For 2019/20 it was 35%. Roughly one half of ieso's referrals never start a course of therapy.

These clinical statistics, transparent in the data for anyone who is interested enough to look, have been pointed out by critics time and again, to no avail. It seems that all that matters is that "we have numbers". The focus is "on the final results of the production process, rather than on the social relations by which the very same process is fueled".[62]

The behavioural assembly-line

The emergence of AI therapy is a natural progression of the mechanistic models of therapy developed by the IAPT service over the last 16 years. The neo-Taylorism[63] of short-term CBT treatments will morph quite smoothly into the full automation of machine learning and AI agents.

First, CBT technique and language is already significantly manualised, that is, broken down into a taxonomy of proficiencies, exercises and 'stepped' interventions readily accessible to machine learning.[64] The NHS webpage on Talking Therapies explains.

> *CBT is based on the concept that your thoughts, feelings, physical sensations and actions are interconnected, and that negative thoughts and feelings can trap you in a negative cycle. CBT aims to help you deal with overwhelming problems in a more positive way by breaking them down into smaller parts. You're shown how to change these negative patterns to improve the way you feel. Unlike some other talking treatments, CBT deals with your current problems, rather than focusing on issues from your past. It looks for practical ways to improve your state of mind on a daily basis.*[65]

In 2013 its founders, Professors Layard and Clark, summarised IAPT's CBT practice like this:

> *In the 1960s and 1970s came major breakthroughs in psychological therapy. The most important of these was what is now called Cognitive Behavioural Therapy (CBT), championed by Aaron Beck, which relies on the fact that thoughts affect feelings, and that good mental habits can be systematically built up step by step.*
>
> *It turned out that the thinking style of depressed people included catastrophising (thinking the worst), black-and-white judgements, and overgeneralising from a single bad experience. To help his patients, Beck trained them to examine their thoughts and how they might be biased or distorted. To his surprise, they often stopped coming to see him within twelve sessions, saying they had had all that they needed.*[66]

For Farhad Dalal, CBT's theory of mind is encapsulated in a few sentences. Thoughts cause emotions, so if you change what you think, you will be able to change how you feel. "CBT will teach you how to change what you think."[67]

This way of defining mental ill-health, through patterns of thinking and behaviour, facilitates formulaic constructions through which to shape sessions, identify issues and set goals. CBT teaches a cluster of framing patterns which can be identified as the causes of depression or anxiety, for example, and suggests techniques for consciously reframing these patterns towards healthy thinking. For example, a commonly used list of 'cognitive biases' includes: all-or-nothing thinking, catastrophising, disqualifying or discounting the positive, emotional reasoning (reasoning from how you feel rather than from any evidence), labelling, magnification/minimisation, making 'should' and 'must' statements, and 'mind-reading' (assuming knowledge of how another is thinking/feeling).

It is not difficult to see how machine learning will begin to identify words and phrases from clients that indicate these 'unhealthy' framings, and suggest via an AI agent how they might be reframed towards 'healthier' states of mind.

CBT is far more directive than the more relational modalities of therapy. Listening to and asking questions of clients are judged important, but need to move quickly to action for change, setting exercises and homework. Offering an educational programme of behavioural action and cognitive habits as a course of therapeutic treatment is a handy pathway for machine learning.

Crucially, NHS Talking Therapies has consistently quantified, for both diagnostic and outcome measurement purposes, the symptoms of conditions like depression and anxiety by a specific bank of questionnaires like PHQ 9 and GAD 7. Taking depression again as an example, because clients are asked to score their symptoms of depression on a sliding scale for each of the same nine questions every single session, the symptomology described by PHQ 9 has become the standard descriptor of depression for the NHS and for any organisation acknowledged or funded by the NHS as an 'evidence-based' service.

These inventories of symptoms are the perfect data points for fully-automated AI therapy. Any AI software is able to ask for and process the feedback data for each session, comparing this week with last week, and making an accumulating judgement on what language and exchanges are likely to have influenced improvement (or not). Once the ball is rolling, the cycle of continuous machine learning is in motion and self-directing.

PART TWO *coming soon*

Machina ex deo

State therapy and the hollowing out of intersubjectivity

> *"Big Data and Cloud Capital are fast developing mechanisms of power and monopoly that are hollowing out social life and reconstructing the expectations of interpersonal relationship. They are working to embed neoliberal forms of knowledge and psychological language based in the individualism and utilitarianism of biochemistry, neuroscience, and behaviourism - languages which help colonise and marketise subjective and intersubjective experience."*

Sections:

- Homogenising psychotherapy
- Deskilling the therapists
- Machinic unconscious: the ethics of the therapeutic interaction
- Hypocrisy and the political economy of NHS Talking Therapies
- AI, the mental health crisis and the accelerating denial of care

REFERENCES*

1. Couldry, N. and Mejias, U. (2019). *The costs of connection: how data is colonizing human life and appropriating it for capitalism.* Redwood City, California: Stanford University Press, p.115.

2. Ahmed, A. (2022). *AI therapy: digital solution to address mental health issues.* Online at: https://techacute.com/ai-therapy-digital-solution-to-address-mental-health-issues

3. Bisley, A. (2017). *Q & A: author Irvine Welsh on the 'Trainspotting' sequel, drugs, and writing.* Online at: https://www.macleans.ca/culture/books/qa-author-irvine-welsh-on-the-trainspotting-sequel-drugs-and-writing

4. See, for example, Bruce, J. D. (1913). Human automata in classical tradition and mediaeval romance. *Modern Philology,* Vol. 10, No. 4, pp. 511-526. The University of Chicago Press. Available online at: https://www.journals.uchicago.edu/doi/pdfplus/10.1086/386901?download=true Also: Anyoha, R. (2017). *The history of artificial intelligence.* Cambridge, Massachusetts: Harvard University.

5. Since 2008, there have been several extensive critiques of both the IAPT service and of the cognitive behavioural therapy monopoly. See, for example, House, R., and Loewenthal D. (2008). *Against and for CBT: towards a constructive dialogue?* Manchester: PCCS Books. Also: Dalal, F. (2018). *The cognitive behavioural tsunami: managerialism, politics and the corruptions of science.* Abingdon, Oxfordshire: Routledge. Also: Jackson, C. and Rizq, R. (Eds.) (2019). *The industrialisation of care: counselling, psychotherapy and the impact of IAPT.* Manchester: PCCS Books.

6. Much of the current media noise about the dangers of AI is referring to strong AI as distinct from weak AI. 'Strong' AI seeks to create artificial persons: machines that have all the mental powers we have, including phenomenal consciousness. 'Weak' AI, on the other hand, seeks to build information processing machines that appear to have the full mental repertoire of human persons. See Budenholzer, F. (2022). AI and the humanities: philosophical concerns. *Journal of Data Analysis,* Vol. 17, Issue 4. Available online at: https://www.airitilibrary.com/Article/Detail/P20140403001-N202301190022-00009
Most commentators agree that, outside science fiction, strong AI is a thing of the future – if ever. Here we are talking about weak AI.

7. See the latest data sets online at: https://digital.nhs.uk/data-and-information/data-collections-and-data-sets/data-sets/improving-access-to-psychological-therapies-data-set/improving-access-to-psychological-therapies-data-set-reports

8. See, for example, Health Education England. (2023). *NHS Talking Therapies for anxiety and depression workforce census: national report.* Available online to download at: https://www.hee.nhs.uk/our-work/mental-health/improving-access-psychological-therapies

9. Question posed by: Bandinelli, C., and Bandinelli, A. (2021). What does the app want? A psychoanalytic interpretation of dating apps' libidinal economy. *Psychoanal Cult Soc* 26, 181–198. Available online at: https://doi.org/10.1057/s41282-021-00217-5

10. Clay, R.A. (2021). 2021 trends report: mental health apps are gaining traction. *Monitor on Psychology*, Vol. 52, No. 1. Available online at: https://www.apa.org/monitor/2021/01/trends-mental-health-apps
The Apple Store lists 77 apps under 'well-being'.

11. See report by Rawal, J. (2024), at: https://www.fortunebusinessinsights.com/mental-health-apps-market-109012#

12. Wylie, L. (2024). *Wellness app revenue and usage statistics.* Available at: https://www.businessofapps.com/data/wellness-app-market

13. https://www.wysa.com

14. Description on their website at: https://www.wysa.com/nhs – See also, for example: Taylor, E. (2023). *NHS children services: how the North East London NHS Foundation Trust uses Wysa for children's mental health.* Available online at: https://blogs.wysa.io/blog/most-read/nhs-children-services-how-the-north-east-london-nhs-foundation-trust-uses-wysa-for-childrens-mental-health

15. https://www.nice.org.uk/news/articles/nice-recommends-8-digitally-enabled-therapies-to-treat-depression-and-anxiety

16. https://www.england.nhs.uk/supporting-our-nhs-people/support-now/wellbeing-apps/

17. https://www.england.nhs.uk/aac/what-we-do/innovation-for-healthcare-inequalities-programme/health-innovation-network Also: https://nhsaccelerator.com/innovations/?category=68

18. Ahmed, B. (2024). *Chatbot vs conversational AI – what's the difference?* Online at: https://yellow.ai/blog/chatbot-vs-conversational-ai

*Weblinks listed above are live when this file is opened in Acrobat Reader. An alternative version of the references is available at: https://freepsychotherapynetwork.com/3068-2/

19. See, for example, Predin, J.M. (2024). *AI empathy: emotional AI is redefining interactions in the digital age*. Online at: https://www.forbes.com/sites/josipamajic/2024/01/30/ai-empathy-emotional-ai-is-redefining-interactions-in-the-digital-age

Also: Li, H., Zhang, R., Lee, Y.C., et al. (2023). Systematic review and meta-analysis of AI-based conversational agents for promoting mental health and well-being. *npj Digit. Med.* 6, 236. Online at: https://doi.org/10.1038/s41746-023-00979-5

Also: Beltramin, A. (2023). *Artificial intelligence: can AI feel emotions?* Online at: https://www.morphcast.com/blog/can-ai-feel-emotions

20. Li, H., et al. (2023). *Op. cit.* (note 19).

21. See: https://www.iesogroup.com/nhs

22. NHS Talking Therapies includes a number of examples of treatments that are neither talking nor therapy.

23. Pitchford, N. (CEO). *Ieso Digital Health*. Online at: https://www.scaleupinstitute.org.uk/stories/ieso-digital-health/

24. Taylor, P. (2022). *UK digital health firm Ieso raises $53m for US expansion*. Online at: https://pharmaphorum.com/news/uk-digital-health-firm-ieso-raises-53m-for-us-expansion

25. https://www.iesogroup.com/payers See also: Lovell, T. (2021). *Digital mental health firm ieso lands $53M in Series B round*. Online at: https://www.mobihealthnews.com/news/emea/digital-mental-health-firm-ieso-lands-53m-series-b-round

26. https://www.iesogroup.com/team

27. Quoted in Betuel, E. (2021). *UK-based mental health provider ieso raises $53M armed with an 'unprecedented' data set*. Online at: https://techcrunch.com/2021/11/23/uk-based-mental-health-provider-ieso-raises-53m-armed-with-an-unprecedented-dataset/

28. https://www.iesogroup.com/products

29. Blackwell, A. *Artificial intelligence meets mental health therapy.* Online at: https://youtu.be/ZkTvw3usMw4?si=woj_sjZJtz9tkHgk

30. Ewbank, M.P., Cummins, R., Tablan, V., et al. (2019).Quantifying the association between psychotherapy content and clinical outcomes using deep learning. *JAMA Psychiatry.* 2020;77(1):35–43. Online at: https://jamanetwork.com/journals/jamapsychiatry/fullarticle/2748757

31. https://www.onlinecbtresources.co.uk/standard-questionnaires

32. Li, H., et al. (2023). *Op. cit.* (note 19).

33. Rollwage, M., Habicht, J., Juchems, K., Carrington, B., Hauser, T.U., and Harper, R. (2024). Conversational AI facilitates mental health assessments and is associated with improved recovery rates. *BMJ Innovations,* Vol. 10, Issue 1-2. Abstract online at: https://innovations.bmj.com/content/10/1-2/4

34. See: https://limbic.ai and https://www.pcmis.com/wp-content/uploads/2021/07/PCMIS-Limbic-AI-Integration-Explainer.pdf

35. https://limbic.ai/care

36. (2024). *Limbic raises $14m to bring AI-powered mental health support, proven in the world's largest public health system, to U.S. providers*. Online at: https://www.businesswire.com/news/home/20240305530337/en/Limbic-Raises-14M-to-Bring-AI-Powered-Mental-Health-Support-Proven-in-the-World%E2%80%99s-Largest-Public-Health-System-to-U.S.-Providers

37. https://find-and-update.company-information.service.gov.uk/company/05117697

38. See press release at: https://www.lyssn.io/press-release_trent-pts/

39. https://www.silvercloudhealth.com/uk/about-us

40. See press release at: https://www.silvercloudhealth.com/uk/press_releases/silvercloud-health-collaborates-with-microsoft

41. https://www.wysa.com/adult-talking-therapies

42. Belgrave, D., and Thieme, A. (2019). *Microsoft collaborates with SilverCloud Health to develop AI for improved mental health*. Online at: https://www.microsoft.com/en-us/research/blog/microsoft-collaborates-with-silvercloud-health-to-develop-ai-for-improved-mental-health/?ocid=msr_blog_silvercloud_tw

43. Ackerman, D. (2012). In *The Daily Star*. Cited at: https://www.azquotes.com/quote/1336?ref=robots#google_vignette

44. Ahmed. A. (2022). *AI therapy: digital solution to address mental health issues*. Online at: https://techacute.com/ai-therapy-digital-solution-to-address-mental-health-issues/

45. What Caroline Molloy calls "technosalvationism". "Big promises are made by technophile politicians and tech corporations for the ways in which connected technology will help the state solve a wide range of social challenges. And nowhere more so than in health and care, where we're told that digitisation will do everything from 'empowering' patients and getting us off the couch, to curing cancer and saving the National Health Service." See: Malloy, C. (2020). *Will Big Tech save the NHS – or eat it alive?* Online at: https://www.opendemocracy.net/en/ournhs/will-big-tech-save-the-nhs-or-eat-it-alive

46. NHS Confederation report. (2023). *Maximising the potential of digital in mental health*. Online at: https://www.nhsconfed.org/publications/maximising-potential-digital-mental-health

47. The Topol Review. (2019). *Preparing the healthcare workforce to deliver the digital future. An independent report on behalf of the Secretary of State for Health and Social Care*. Online at: https://topol.hee.nhs.uk/wp-content/uploads/HEE-Topol-Review-2019.pdf

48. See, for example, The Kings Fund. (2016). *Digital health policy timeline: 1960 to 2016*. Online at: https://www.kingsfund.org.uk/insight-and-analysis/data-and-charts/digital-health-policy-timeline See also the work of the Health Data Working Group at Keep Our NHS Public: https://keepournhspublic.com/health-data-working-group

49. Quoted in Rahman, S. (2015). *A 24/7, transparent NHS – or the rise of the planet of the apps?* Online at: https://www.opendemocracy.net/en/ournhs/247-transparent-nhs-or-rise-of-planet-of-apps/

50. (2023). *Babylon Health: the failed AI wonder app that 'dazzled' politicians*. Online at: https://theweek.com/health/babylon-health-the-failed-ai-wonder-app-that-dazzled-politicians

51. Oxford, E. (2022). Hundreds of patient data breaches are left unpunished. *BMJ* 2022;377:o1126. Online at: https://doi.org/10.1136/bmj.o1126

52. (2022). *Low NHS capacity in mental health leaves it beholden to private companies*. Online at: https://lowdownnhs.info/news/low-nhs-capacity-in-mental-health-leaves-it-beholden-to-private-companies

53. Guardian Editorial. (2022). *The Guardian view on mental health privatisation: unsafe spaces*. Online at: https://www.theguardian.com/commentisfree/2022/apr/25/the-guardian-view-on-mental-health-privatisation-unsafe-spaces

54. Author's own research, using publicly available data.

55. Health Education England. (2023). *NHS Talking Therapies for anxiety and depression workforce census: national report*. Available online to download at: https://www.hee.nhs.uk/our-work/mental-health/improving-access-psychological-therapies, pp.57-59.

56. Quoted at: https://digital.nhs.uk/data-and-information/publications/statistical/psychological-therapies-annual-reports-on-the-use-of-iapt-services/annual-report-2021-22

57. For a critique of 'evidence-based' treatments in mental health, see for example: Gregory, A.A. (2023). *Debunking 4 myths about evidence-based treatments*. Online at: https://www.psychologytoday.com/gb/blog/simplifying-complex-trauma/202305/debunking-4-myths-about-evidence-based-treatments
Also, Shedler, J. (2018). Where is the evidence for "evidence-based" therapy? *Psychiatric Clinics of North America*, Volume 41, Issue 2, 2018, pp.319-329. Online at: https://doi.org/10.1016/j.psc.2018.02.001
Also, Beichman, J. (2021). *Evidence-based medicine, evidence-based practice, NICE, IAPT and CBT: A short history.* Online at: https://jaybeichmanwriter.com/2021/12/21/evidence-based-medicine-evidence-based-practice-nice-iapt-and-cbt-a-short-history

58. Description at: https://www.england.nhs.uk/mental-health/adults/nhs-talking-therapies

59. See a similar assertion from the American Psychological Association: "It is important to emphasize that advances in CBT have been made on the basis of both research and clinical practice. Indeed, CBT is an approach for which there is ample scientific evidence that the methods that have been developed actually produce change. In this manner, CBT differs from many other forms of psychological treatment". See: https://www.apa.org/ptsd-guideline/patients-and-families/cognitive-behavioral

60. Clark, D.M. (2019). *IAPT at 10: achievements and challenges*. Online at: https://www.england.nhs.uk/blog/iapt-at-10-achievements-and-challenges

61. See Atkinson, P. *Alternatives to NHS Talking Therapy in North East London*. Open letter available online at: https://uaccess2ct.co.uk/2023/05/01/alternatives-to-nhs-talking-therapy-in-north-east-london

62. On the fetishism of Big Data see: Miconi, A. (2024). On digital fetishism: a critique of the big data paradigm. *Critical Sociology,* 50(4-5), 629-642. Available online at: https://doi.org/10.1177/08969205231202873

63. Baumgarten, S. and Bourgadel, C. (2023). Digitalisation, neo-Taylorism and translation in the 2020s. *Perspectives,* 32(3), pp. 508–523. https://www.tandfonline.com/doi/full/10.1080/0907676X.2023.2285844

64. The attempt by healthcare policy makers to systematically break down the theory and practice of counselling and psychotherapy, in the private as well as state sectors, into a list of proficiencies that can be taught, tested and monitored came to a head as the IAPT service was taking over NHS psychological therapies. See: https://www.ucl.ac.uk/pals/research/clinical-educational-and-health-psychology/research-groups/competence-frameworks-0

65. https://www.nhs.uk/mental-health/talking-therapies-medicine-treatments/talking-therapies-and-counselling/cognitive-behavioural-therapy-cbt/overview

66. Layard, R., and Clark, D. (2014). *Thrive: the power of evidence-based psychological therapies*. Kindle Edition, p.7.

67. Dalal, F. (2019). *CBT: The cognitive behavioural tsunami: managerialism, politics and the corruptions of science.* Abingdon, Oxon: Routledge, p.104.