Lost in Translation

An interactive workshop mapping interdisciplinary translations for epistemic justice
CRAFT session, January 29, 15:00-16:30 & 17:00-18:30

Main Concepts

This list of main concepts was drawn from the different disciplinary backgrounds of the organisers of the workshop. It is meant to facilitate the construction of shared understanding, at least within the workshop setting, as well as to serve as a resource for further information. They are neither official nor complete definitions - simply guidelines for understanding.

Algorithm

A sequence of steps that describes a computational procedure that takes some value, or set of values, as input and produces some value, or set of values, as output. In technical terms, an algorithm is thus a clearly defined sequence of computational steps that transform input into output. In broader discourse, the term is often used as a terminological stand-in for a sociotechnical assemblage comprising the technical object, the deploying entity (e.g. a company), the data and so forth. As a non-mathematical concept, an algorithm has also acquired the status of a cultural object, and is often used to denote a certain *modus operandi* that characterizes contemporary culture. It is therefore closely related to automation, prediction and expanding digitization.

How would you describe this term? Feel free to add, amend or update this definition:

Some references:

- Gillespie, T. (2016). "Algorithm." In Peters, B. (Ed.): Digital keywords: A vocabulary of information society and culture. 18-30, Princeton: Princeton University Press.
- Goffey, Andrew (2008). Algorithm. In M. Fuller (Ed.), Software Studies. A Lexicon. 15-20, Cambridge, Mass.: The MIT Press.
- Striphas, T. (2015) Algorithmic Culture, *European Journal of Cultural Studies*, 18 (4-5), 395-412.
- Kitchin, Rob (2017), Thinking Critically About and Researching Algorithms, *Information, Communication and Society*, 20(1): 14-29, http://dx.doi.org/10.1080/1369118X.2016.1154087

Data

Represents digital units of information, for example measurements, statistics, declarations, inferences. They describe qualitative and/or quantitative characteristics of singular or multiple object(s) and/or their relations. Data are a prerequisite in today's popular machine learning technologies that are based on lots of examples or training

data ("*Big Data*") that enable them to produce probabilistic outputs regarding unknown data. Data is widely and often freely available on the internet and processable for entities with large enough storage and computation resources. It has been described as a regular currency for internet users, which pays for their usage of allegedly free communication services on proprietary platforms. As data is not objective but rather emanating from specific societal contexts, it carries and/or transforms biases and assumptions that may result in problematic results for certain user groups subject to machine learning technologies.

Some references:
●   Van Dijck, J. (2014). "Datafication, dataism and dataveillance: Big Data between scientific paradigm and ideology." *Surveillance & society* 12.2: 197-208.
●   Baeza-Yates, R. (2018). Bias on the web. *Communications of the ACM*, *61*(6), 54-61.
●   Barocas, S., & Selbst, A. D. (2016). Big data's disparate impact. *Calif. L. Rev.*, *104*, 671.
●   Boyd, D., & Crawford, K. (2012). Critical questions for big data: Provocations for a cultural, technological, and scholarly phenomenon. *Information, communication & society*, *15*(5), 662-679.

How would you describe this term? Feel free to add, amend or update this definition:

Machine Learning

Machine Learning (ML) is the study, design, and deployment of algorithms and statistical models that generate desired output without explicit instructions. ML algorithms "learn" a mathematical model of data structures in a training data sample, and use this model in order to make "predictions" (i.e. to generate probabilities) based on similar, yet unseen, data. ML systems can entail several algorithms. ML can also be understood as an assemblage of elements, including algorithms but also humans, computers and networks, sensors, histories, etc. In that sense, they are sociotechnical systems. Currently, ML can be also said to be a more practical term for artificial intelligence.

How would you describe this term? Feel free to add, amend or update this definition:

Some references:
●   Vishal Maini, Samer Sabri (2017), *Machine Learning for Humans*,
https://medium.com/machine-learning-for-humans/why-machine-learning-matters-6164faf1df12, direct download link:
https://www.dropbox.com/s/e38nil1dnl7481q/machine_learning.pdf?dl=0
●   Adrian Mackenzie (2017), *Machine Learners*, The MIT Press.

Discipline/ Disciplinarity

Knowledge becomes formalised through disciplines, such as teaching curricula, core concepts, and assumptions broadly shared by the field. A discipline generates its own language and culture, taking up "sets of favoured terms, sentence structures and logical syntax – which is not easy for an outsider to imitate" (Becher and Trowler 2001, 47). In order to become part of a discipline (e.g. to become a computer scientist, a lawyer, or a sociologist), an individual has to be "inducted" into the discipline through learning the linguistic and symbolic forms of communication, meanings, customs, practices, beliefs, morals, and rules of conduct. Disciplinarity refers to such features particular and fundamental to a specific disciplinary culture, and has been reinforced through knowledge specialisation within university departments and the industry's desire and demand for specialists trained in a particular area who would be considered professionals in the field.

How would you describe this term? Feel free to add, amend or update this definition:

Some references:
● Becher, Tony, and Paul Trowler. *Academic Tribes and Territories: Intellectual Enquiry and the Culture of Disciplines.* McGraw-Hill Education (UK), 2001.

● Frodeman, Robert, Julie Thompson Klein, and Roberto Carlos Dos Santos Pacheco, eds. *The Oxford Handbook of Interdisciplinarity*. Second Edition. Oxford Handbooks. Oxford, New York: Oxford University Press, 2017.
● Klein, Julie Thompson. *Interdisciplinarity: History, Theory, and Practice.* Wayne State University Press, 1990.

Sociotechnical systems - Material-semiotic systems

The sociotechnical approach suggests that in all systems, the social and the technical are interconnected. In other words, no technology is merely "technological", outside of the social discourses and culture, and vice versa - no social system or cultural milieu is purely social. Popularized by science and technology studies, the sociotechnical approach postulates the mutual shaping of technology and society. In feminist theory, a similar approach has been developed regarding the relationship between matter ("nature", technology, etc.) and semiotics (meaning, discourse, culture). Specifically with thinkers such as Donna Haraway, the matter and discourse as seen as mutually constitutive. In other words, discourses and meanings shape the material world, while the material capacities, affordances and agencies shape the social and cultural realms. This also informs thinking about algorithmic ML systems as sociotechnical, material-discursive or material-semiotic systems.

How would you describe this term? Feel free to add, amend or update this definition:

Some references:
● Bijker, W.E. and Law, J. (Eds) (1992), Shaping Technology/Building Society: Studies in Sociotechnical Change, MIT Press, Cambridge, MA.
● Haraway, D.(1988), "Situated knowledges: the science question in feminism and the privilege of partial perspective", Feminist Studies, Vol. 14 No. 3, pp. 575-599.
● Claude Draude, Goda Klumbyte, Phillip Lücking, Pat Treusch (2019), "Situated Algorithms: a sociotechnical systemic approach to bias", Online Information Review, DOI 10.1108/OIR-10-2018-0332

Knowledge/ Epistemology

How do we know what we know? Epistemology is the philosophical study of what knowledge is and how knowledge comes into being. In abstract terms, the basic premise of the study of knowledge is that systems of thought and knowledge are governed by certain rules (beyond those of grammar and logic). Knowledge may be governed by an individual's experience, subject position, and power. For example, both a dancer and a physiotherapist would know how a particular body part moves: a dancer through years of physical training; a physiotherapist from the perspective of medicine and anatomy. A traditional holistic healer might use herbal treatments for an ailment, but this might not be accepted by Western medicinal science and the healer's knowledge might not be considered valid and reliable. As with the uneven distribution of power in society, certain knowledges are subjugated and devalued while others occupy a higher status in the hierarchy. Fields such as history of science, philosophy of science, and sociology of science study the generation and evolution of epistemic cultures, the contested nature of knowledge production, and address the politics and power differentials in science.

How would you describe this term? Feel free to add, amend or update this definition:

Some references:
● Kuhn, Thomas S. The Structure of Scientific Revolutions. University of Chicago Press, 1970.
● Foucault, Michel. 'Truth and Power'. In *Power/Knowledge: Selected Interviews and Other Writings, 1972-1977*, edited by Colin Gordon, 109–33. New York: Pantheon Books, 1980.
● Harding, Sandra. *Whose Science? Whose Knowledge?: Thinking from Women's Lives.* Cornell University Press, 1991.

Epistemic Justice

Epistemic Justice describes an imperative that follows from the acceptance of a throng of three conceptions: humans are fundamentally equal, inherently social, and critically interdependent with regard to knowledge practices. Our epistemic positions –understood as being in the know, being heard, and able to participate–follow from the social ('power') relations that govern any locus ('academia,' 'mental health,' 'Silicon Valley.') Geographical, cultural, and other differences may foster characteristic practices but should not lead to the exclusion of anyone for who they are. 'Justice' nods to the politics of knowledge practices. As subjects, we are also defined by our epistemic power-relations. We therefore need to be able to assess the authority that we accept from people and that we

assign to knowledge. Theorists in this space define tandems of virtues to foster: due care & honesty, accuracy & sincerity, competence & trustworthiness. Due care/accuracy/competence speaks primarily to methods used, honesty/sincerity/trustworthiness emphasize the honesty of the accounts of the process that we give ourselves and others.

How would you describe this term? Feel free to add, amend or update this definition:

Some references:
- Lorraine Code, Epistemic Responsibility, Brown University Press (1987)
- Miranda Fricker, Rational Authority and Social Power: Towards a Truly Social Epistemology, Proceedings of the Aristotelian Society, New Series, Vol. 98 (1998), pp. 159-177
- Foucault, Michel. 'Truth and Power'. In *Power/Knowledge: Selected Interviews and Other Writings, 1972-1977*, edited by Colin Gordon, 109–33. New York: Pantheon Books, 1980.
- Bernard Williams, Truth and Truthfulness, Princeton University Press (2002)
- Machteld Geuskens, Epistemic Justice: A Principled Approach to Knowledge Generation and Distribution. (2018).
- *One can additionally source virtue epistemologists' work.*

Epistemic Injustice

As knowing, thinking, telling subjects, in practice, we need to be able to trust more than we are able to check authoritative knowledge claims and claimants. This renders us vulnerable to intended and unintended malpractice. Terms much used in this space are (1) testimonial injustice, when people experience reduced credibility (usually tied to any form of marginalized social status) and (2) hermeneutical injustice, which speak to harms done to people's own capabilities for meaning making and sharing. Think of bad education, internalized discrimination, exclusionary descriptions of diseases or harms. The two feed into each other. Perpetrator are not protected from persistent harms: we are interdependent, so when we exclude others, we eventually lose the ability to assess ourselves. Because it is hard to deconstruct failing paradigms, prevention trumps cure. Critical theory and legal studies reveal the process as a multi-pronged power struggle: investigation not only pertains expressive and interpretative resources, but also the ontology of their use, and their users.

How would you describe this term? Feel free to add, amend or update this definition:

Some references:
- To make it 'easy,' The Routledge Handbook of Epistemic Injustice (2017) is a valuable resource. Most contributors refer to

Miranda Fricker as the one who coined 'testimonial' and 'hermeneutical' injustice and/but also critique and develop them. 'Part I' provides a good understanding of the state of the field and its concepts, as many contributors have been writing and developing the subjects for many years. For example, Fricker herself assesses how her work is taken up, and Code looks back on her early work on the subject (see 'epistemic justice.') Charles Mills and José Medina are invaluable to understand the deep impacts of epistemic harms.

Multiples and situated knowledges

The multiple is an anthropological concept stating that phenomena can exist in multiple "versions" of themselves. These versions are enacted in practice. Annemarie Mol is perhaps best known for her work on multiples, using the case of arteriosclerosis in a Dutch hospital. She observed that different medical practices give rise to different versions of arteriosclerosis – such as the individual case study of a patient, the observation of dead cells by a lab technician, or the physicians first hand observation of open arteries. Each of these practices not only create different viewpoints on arteriosclerosis, but ultimately shape how the disease is acted upon and treated - thereby enacting different realities of the disease and its cures.
While multiples observe how different knowledges produce different realities that can co-exist, situated knowledges critique the power asymmetries across knowledge claims. Popularised as a feminist theory of knowledge by Donna Harraway, the theory of situated knowledges criticises ideas of an objective "god's eye" knowledge that could operate as a "view from nowhere". Such knowledge historically was imposed onto social groups by institutions such as the military or the state, as well as by colonizers onto the colonized. A feminist notion of objectivity considers knowledges as situated, always partial, and situated in location, bodies, and communities. It questions how scientific knowledge is made technically, socially, and how it is situated in ideology and history. Without proposing that all knowledge is relative, it instead proposes that all knowledge comes from somewhere.

How would you describe this term? Feel free to add, amend or update this definition:

Some references:
●   Mol, A. (2002), The Body Multiple. Ontology in medical practice. Duke University Press: Durham.
●   Haraway, D. (1988), "Situated knowledges: the science question in feminism and the privilege of partial perspective", Feminist Studies, Vol. 14 No. 3, pp. 575-599.
●   Seaver, N. (2018): Algorithms as culture: Some tactics for the ethnography of algorithmic systems, Big Data & Society 4(3), https://doi.org/10.1177/2053951717738104

Critical technical practice

A concept popularized by Philip Agre, critical technical practice was originally addressed at designers of AI who have "one foot planted in the craft work of design and the other foot planted in the reflexive work of critique". Critical technical practice aims to blend daily design practices with a historical and political understanding of the institutions and methods shaping the field of AI development. This involved for Agre to make visible all choices and assumptions that may get hidden in the design process of AI. More recently, scholars

have experimented with documentation practices (such as writing readme.txt files or using annotations in digital research tools) to document the decisions made during the use of digital devices or programming. This shall train data scientists and computer scientists to become more conscious about their decisions when designing or operating software, by bringing these decisions to the fore and to reflect on them. The idea is to enable to account for design decisions and technical troubles which usually get hidden from view, and to make them "account-able" - meaning able to be accounted for in the first place.

How would you describe this term? Feel free to add, amend or update this definition:

Some references:
- Agre, P (1992), "Towards a critical technical practice. Lessons Learned in Trying to Reform AI". In: Bijker, W.E. and Law, J. (Eds.), Shaping Technology/Building Society: Studies in Sociotechnical Change, MIT Press, Cambridge, MA.
- Ziewitz, M. (2017): A not quite random walk: Experimenting with the ethnomethods of the algorithm. Big Data & Society, 4(2), https://doi.org/10.1177/2053951717738105
- Malazita, J., Resetar, K. (2019): Infrastructures of abstraction: how computer science education produces anti-political subjects, Digital Creativity, DOI: 10.1080/14626268.2019.1682616

- Garfinkel, H. (1967), Studies in Ethnomethodology. Prentice-Hall: Englewood Cliffs.

Artificial Intelligence

"To recap: we have a small, elite group of men who tend to overestimate their mathematical abilities, who have systematically excluded women and people of color in favor of machines for centuries, who tend to want to make science fiction real, who have little regard for social convention, who don't believe that social norms or rules apply to them, who have unused piles of government money sitting around and who have adopted the ideological rhetoric of far-right libertarian anarcho-capitalists. What could possibly go wrong?"

How would you describe this term? Feel free to add, amend or update this definition:

Reference:
- Meredith Broussard, *Artificial Unintelligence: How Computers Misunderstand the World*, MIT Press (2018)