Anna Barham

Cutting squid into squares
Sabel Gavaldon

From the perspective of humans, to reflect is to draw carefully delineated distinctions. And among distinctions, there is apparently none more clear-cut than that between a living organism and its environment. In 1935, the Surrealist-influenced magazine *Minotaure* published a paper by Roger Caillois devoted to the study of 'Mimicry and Legendary Psychasthenia'[1], where he suggested that certain animals such as butterflies, mantises, and octopuses blend into their surroundings not to protect themselves, but out of an irrepressible desire to dissolve into the world.

Having already defined the self as an alienating feeling of distinction from one's milieu (a withdrawal from the world), Caillois discovered in mimicry a genuine photographic impulse, an automatic form of expression that allowed these animals to transform into a convincing facsimile of seeds, sand, or seaweed. A prime example is the squid which is among the most fascinating creatures: an elongated, fast-swimming cephalopod with eight arms, two tentacles, and a highly distributed nervous system that extends throughout the body, enabling each of its arms to think by itself. Even the light-sensing and colour-processing abilities of the squid are autonomously distributed throughout the skin, which contains the same proteins that are found in our eyes. Specialised cells act as highly reflective, self-organising components, which are able to dynamically adapt their anatomical structure to modulate the way the light refracts on them, turning the squid's mantle into an invisibility cloak as well as a signalling device. For squid, the skin is a screen — a sensing, pulsing, viscous screen — that remains in a constant conversation with every aspect of its environment. But the question becomes: Are we ready to listen to what the squid has to say?

Admittedly, squid language can be quite difficult to apprehend. In her recent work, Anna Barham draws analogies between the camouflage mechanisms of the squid and the act of reading. In particular, she examines the de-coding operations carried out by speech recognition software. The hardest part of this process is for the computer to discern discrete words from the continual stream of naturally spoken language. If the programme mis-recognises the context of utterance, the message rapidly dissolves into a sea of jelly-like, amorphous textual matter.

For the computer, the ultimate problem appears to be that of distinguishing between foreground and background. This is because computers are machines engineered by humans, and human reason operates through clear-cut distinctions. Modern sciences brandish the scalpel of reason to tailor phenomena to scientific models, demarcating outlines so that we can imagine controlling with our hands what appears in front of our eyes. According to media theorist Vilém Flusser, 'the first tool produced by man at the very instant of becoming man was the stone knife. Human reason produces knives because it works like a knife, and it works like a knife because it produces knives.'[2] It is not a matter of chance that these words outlining an archaeology of knowledge were published by Flusser in the context of his essay *Vampyroteuthis Infernalis* (1987), a piece of philosophical fiction that examined human communication from the perspective of a giant deep-sea squid.

Of course, squid have virtually no interest in knives; and this is because cephalopodan intelligence is not bound to 'cutting-edge', human technology. Conversely, it's common for humans to show an interest in using knives on squid, mostly in order to chop its body into edible portions. In Barham's work *Score* (2015), the visitor encounters a large poster containing over a hundred variations on a text about cleaning a squid[3]. The artist has been working on this text for two years, processing it over and over through speech recognition software. Subject to endless mutation, the text has been interpreted and embodied in several reading groups, only to be processed again by the computer, creating a feedback loop between human and machine that opens up to the unforeseeable. Running around the gallery walls, the bodily encounter with this intricate stream of words is both an immersive and disorienting experience, which brings attention to the materiality of the act of reading. There is an obvious disjunction between the horizontal space of linear writing and the upright verticality of the human body. While navigating across such a large text, the cognitive experience of the space in which the eyes move is detached from the actual movement of the body in the gallery. Roger Caillois described this unsettling experience as a process of 'depersonalisation by assimilation to space'[4]. In Barham's work, it is the space of reading that becomes a devouring force.

A recent series of prints on holographic paper include images of punctuation such as a comma or 'breath mark'. Here, the iridescence of the paper is in a constant conversation with the movements of the audience, fluidly responding to its immediate environment in a squid-like manner. Against this background, the comma is an abstract graphic sign that slits the reflective surface of the paper with violence, opening a wound in the image. Punctuation plays a significant role in Barham's work. In her reading groups, the raw output of the voice recognition software opens up to a multiplicity of interpretations depending on how a reader chooses to punctuate the texts. Computers are programmable machines known for working breathlessly, which means that they do not (yet) understand the necessity of breathing. Consequently, it is no surprise that the computer software has a tendency to process spoken language as a continuous, unpunctuated stream of words. In order to be rendered meaningful by a human reader, the resulting output needs to be interpreted — that is, 'broken by breath'. Breathing, in this way, might turn out to be the ultimate mark of subjectivity in the age of computing.

A quick Google search will suffice to notice one more fascinating, yet terrifying aspect that appears to bind together the biopolitical history of the squid to that of computerised voice analysis. In the last years, both the bioluminescent organs of the squid and speech recognition technologies are becoming increasingly desirable to law enforcement agencies and military apparatus. While the use of voice biometrics already plays an important role in forensic identification and the control of migration, the U.S. Office of Naval Research has recently begun to fund research on reflective squid proteins. In a time like ours, dominated by the proliferation of ever-subtler apparatuses of surveillance, it is surely a sign of hope that it's still possible to imagine a poetics of indeterminacy based on the strange beauty of technological accident, misrecognition, and mistranslation.

In *The squid that hid* (2015), Barham records a series of coding assaults to a digital sketch of an exhibition space. The video is a testament to the process of disintegration of this computer-generated image, obscuring itself as the artist replaces the word 'squid' for every appearance of the letter 's' within the lines of code that compose its digital structure. But rather than just computer code, here it is language itself that is approached as a technology to be hacked. In Anna Barham's work, the always elusive, monstrous figure of the squid holds the promise of a language that enables us to become imperceptible, impossible to demarcate, inappropriate as well as inappropriable. To put it in the elegant words of Deleuze and Guattari: 'For it is through writing that you become animal, it is through colour that you become imperceptible, it is through music that you become hard and memoryless, simultaneously animal and imperceptible: in love.'[5]

1. Roger Caillois, 'Mimicry and Legendary Psychasthenia' translated by John Shepley, *October* 31 (1984), p.12-32
2. Vilém Flusser, *Vampyroteuthis Infernalis*, (Atropos Press, 2011), p.82
3. The text on cleaning a squid was excerpted from an essay by Bridget Crone titled *Image Machine*, the full text can be accessed via: http://www.academia.edu/4229536/Image-Machine
4. Roger Caillois, 'Mimicry and Legendary Psychasthenia', *October* 31, p.30
5. Gilles Deleuze & Felix Guattari, *A Thousand Plateaus*, (Minnesota Press, 2005), p.187

The squid that hid
or camouflage as a (mis)understanding of context.

In computing, speech recognition is the translation of spoken words into text, and its performance is measured in terms of accuracy and speed. Speech recognition by a machine is a very complex problem. Human vocalisations vary in terms of accent, pronunciation, articulation, roughness, nasality, pitch, volume and speed, all of which may be distorted by background noise, echoes and interference. And perhaps the most difficult obstacle of all, language as it is naturally spoken doesn't contain breaks between words. Instead, the words blend together, making it very hard for a computer to tell where one ends and another begins.

A squid is an elongated, fast-swimming cephalopod mollusc with eight arms and two long tentacles, typically able to change colour. The word squid is of uncertain origin but is thought to be a sailor's variant of squirt, so called for the ink it squirts to baffle its predator and escape from danger. The 'sounds like' of this etymology is echoed in the 'looks like' of squid camouflage. Using a combination of chromatophores (tiny muscle-controlled bags of pigment in the skin) and iridophores (cells which can reflect different wavelengths of light, i.e. different colours) the squid is almost instantaneously able to control its transparency or match its background perfectly and hide. The problem of how squid are able to choose particular skin colours to camouflage themselves so successfully is particularly interesting as their eyes are completely colourblind. Recent research has found that squid skin contains light-sensitive proteins called opsin, leading to the conjecture that the squid's skin may check the environment itself, cell by cell - not via the eye or brain - to see what colour it should become. In an act of total understanding of context, the squid weaves itself into its surroundings with speed and accuracy.

Computer speech recognition essentially seeks to translate information from one state to another - from speechto text. To do so, a whole chain of material manipulations and complex transformations have to take place. First, the spoken words - vibrations in the air - are captured and converted to a digital signal by taking precise measurements of the wave at frequent intervals. The digitised sound is filtered to remove unwanted noise and sometimes to separate it into different bands of frequency (what we hear as difference in pitch). The sound is then normalised to a constant volume and the speed adjusted through a process called 'dynamic time warp' to match the speed of the samples stored in the system's memory. Then the signal is divided into small samples - 100ths or 1000ths of a second.

Next and most spectacularly, the programme examines the samples in the context of the other samples around them. Most current speech recognition programmes use statistical modelling systems: hidden Markov models and neural networks. These models take information known to the system (the tiny, chopped up, digitised sounds) to figure out the information hidden from it (the sequence of words that have been spoken). In such models, all sentences in a language are permissible but some are more probable than others. By working out the probability ranking of different possibilities the likeliest sequence can be found. Probabilities of one section of a sequence can affect another, both forward and backwards, in a context-based system that is constantly building on, and creating, its own context. No speech recognition system achieves 100% accuracy, and accuracy diminishes as vocabulary size - potential context - increases. If the model 'misunderstands' the real context, the original message swims camouflaged in a sea of sounds-like. That is - insight is quick / inside the squid.

Poster Image: https://soundcloud.com/banana_harm/sets/penetrating-squid

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