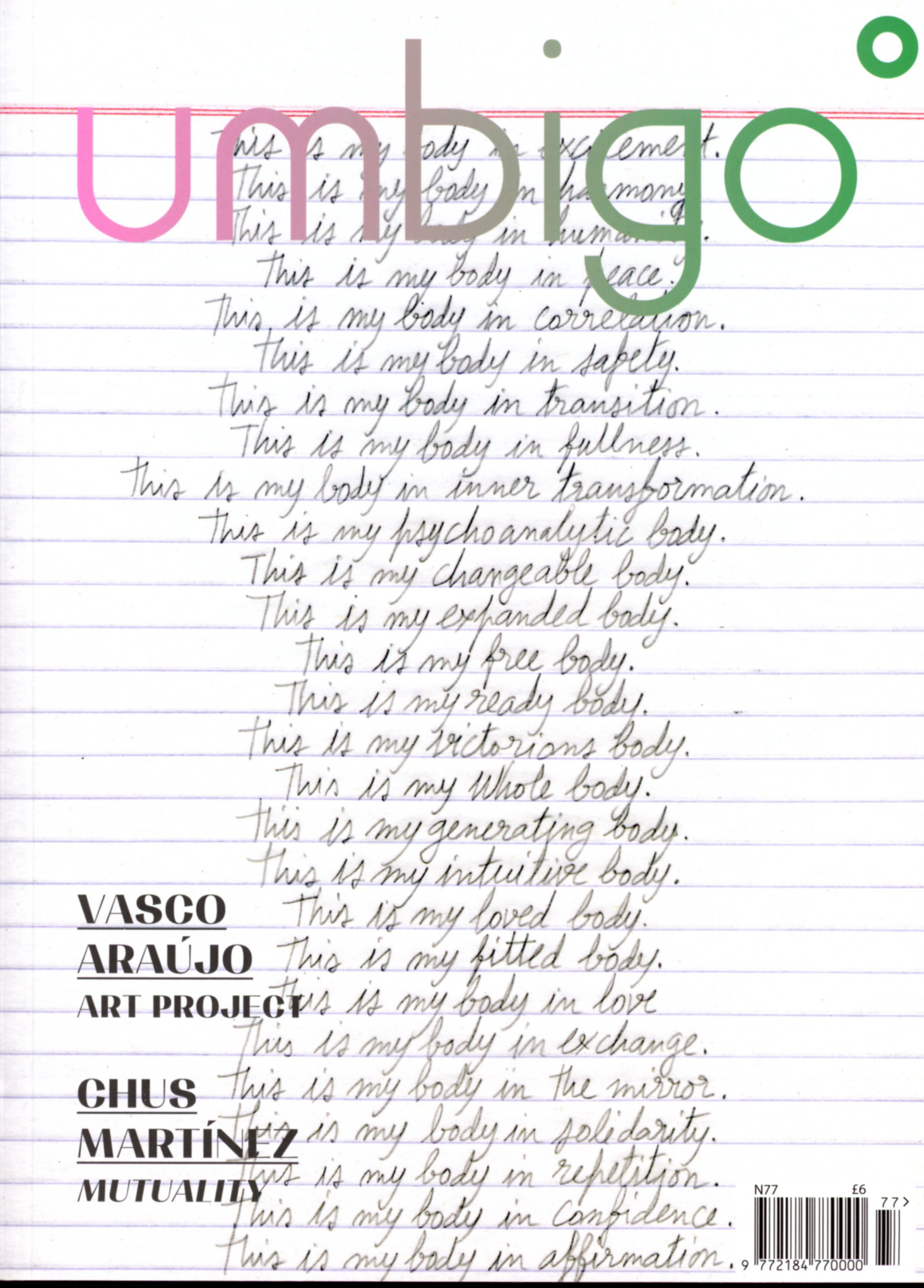

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> text: LEE MACKINNON

Undecidability

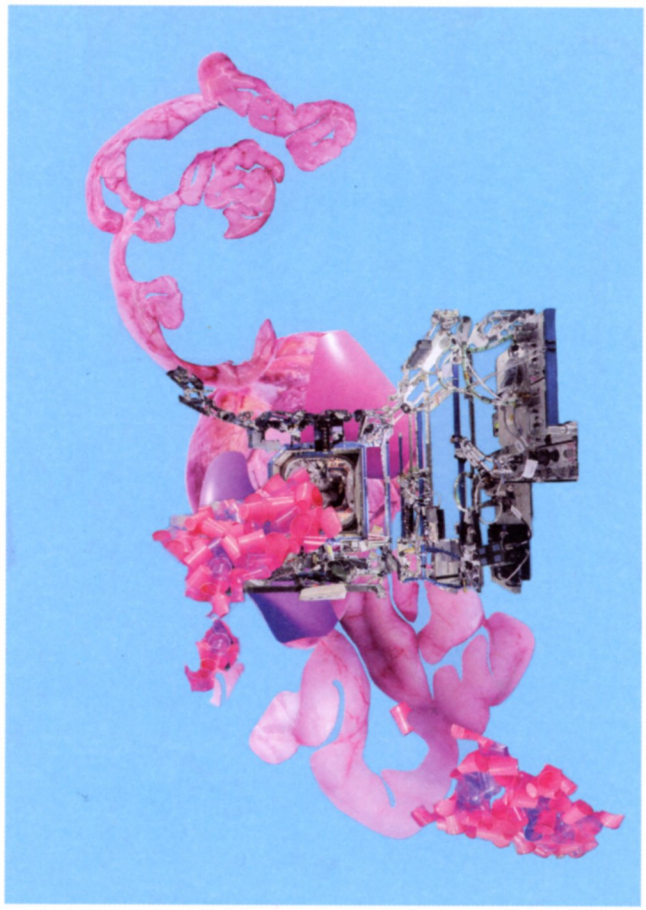
Two years after leaving school, I was walking through the small town where I lived, hand-in-hand with a girlfriend, when I caught sight of a former classmate. She approached, looking quickly from one of us to the other. Before I understood what was happening, I was, for the first time in my life, the subject of an aggressive assault: "You fucking Lesbian," she said in disgust, striking my face with some force, as if she hoped to submit it to permanent reform. Expecting no response, she disappeared as quickly as she had come, muttering profanities.

This event was surprising, not least because I was entirely ambivalent about my own sexuality. Was I a lesbian? Was I even a woman? Should I defend my right to ambivalence? Could I be a feminist when I was so ambivalent about my own gender and sexuality? These questions were elements of an undecidable project, now brought to the fore as the tangible and violent discomfort of others.

This was a period of my life characterised by relinquishing food, an effort to hack the determinations of puberty that had turned me into an unwilling object of desire. My starved brain became cruel in its battle between survival and demise: I remember how lonely it was, mistrusting everyone as they attempted to poison me with food.

A few years ago while researching theories of computation, I became interested in the work of Kurt Gödel. Gödel was a logician and mathematician best known for his *Theory of Incompleteness*, which gave rise to the notion of the undecidable. More recently, I discovered that Gödel starved himself to death at the age of 71. Sources articulate this tragic and puzzling demise differently, and with varying degrees of insight. In one source, it is said that his wife went to hospital for 6 months and, unable to feed himself, he died. In another, he was suffering from a psychiatric illness; in others, he was fearful of germs; he was helpless and child-like; he was suffering from a personality disorder; he was afraid of being poisoned. Each hypothesis seemed to have its basis in wider social expectations of gendered behaviour. They attempted to bridge the gap between what we understand to be a successful logician and what can be inferred about a man who stops eating and starves to death. How to reconcile these two identities without contradiction? The causes of Anorexia Nervosa are unknown. Young women are often deemed to become anorexic due to an obsession with body image and unattainable media ideals, although this easy equivalence seems more likely to be a symptom than a cause. It appears less easy to draw conclusions about why a man in the latter part of his life might succumb to the effects of the illness, perhaps because embedded heterosexist assumptions do not allow brilliant mathematicians to be vain! In any case, I am no Doctor. But I do still find myself speculating on aspects of undecidability. On the one hand, my own, in respect to gender, sexuality and sex. On the other, in respect to Gödel's theory of undecidability, and whether this theory can teach us anything about resisting the need to determine the limits of subjectivity; whether the complexity of the subject can, or should, be reduced to a definitive, continuous concept, and whether this necessarily relies upon an impossible reductiveness that can do great harm.

Born in the Austro-Hungarian Empire in 1906, it meant that Kurt Gödel would be naturalised a Czechoslovakian aged 12; an Austrian when he was 22; and, after Hitler's annexation of Austria, a German at 32. At the age of 42, he became a naturalised American where he remained for the rest of his life. The term, *undecidability*, is attributed to Gödel who first used it in the Journal *Mind* in 1937, to refer to a proposition, or theorem, that can be neither proved nor disproved. A brief historical note may help to put this idea in context. During the nineteenth century, mathematics became increasingly abstract, complex and precise. This was in contrast to practices



(on the left)
Lee Mackinnon, *Viscera 1* and *Viscera 2*, 2021

(on the right)
Lee Mackinnon, *Rock, Paper, Scissors*, 2021

of *calculative logic* that had characterised mathematical systems since ancient Greece, and aspired to a formal system of logic that might describe the universe as it actually was. While modern formalist mathematicians such as David Hilbert, held on to the notion that their discipline was entirely decidable and programmatic, Gödel was keen to point out that the consistency of axioms could not be proven. For him, Hilbert's system was too mechanical to reflect the actual state of things. Gödel claimed that even where axioms could be shown to be true, there was no way of knowing whether they could be logically consistent in all cases. He established the *undecidability* of certain axioms, whereby neither true nor false poles of a particular formula could be derived.

The question of undecidability can arise in both arithmetical and linguistic senses. For example, the notion that '*this statement is not true*,' usually referred to as the *liar's paradox*, presents us with a linguistic example of an undecidable statement. It is a statement that can be simultaneously true and yet untrue at the same time. Gödel's theorem was an acknowledgement that logic was essentially *constructive*. Furthermore, it highlighted the fact that the human mind could not be confined to logical systems (Bates 2005, 13). The radical proposition of such notions cannot be underestimated, and is believed to have contributed to the foundational underpinnings of *deconstruction* that would permeate, and come to dominate, mid and late-twentieth-century philosophical thought, arts and architecture in Western Europe.

A few examples should suffice to demonstrate the possible reach of these ideas – both directly and indirectly. Undecidability had a huge impact on the (then) hypothetical realm of computer science. In 1936, Alan Turing published *On Computable Numbers, with an application to the Entscheidungsproblem*, considered to be the first programming manual of the computer age and a founding document of modern computer science (Copeland in Turing 2004, 6- 12). Turing's work retains its importance in computing today, being critical to the development of computational systems. The 1936 paper develops Gödel's theory, demonstrating that not all mathematical problems can be solved by computing machines. Turing would demonstrate that some algorithms are irresolvable: "for some problems there is no algorithm which will terminate within a finite number of

steps (Ifrah 2000, 279)." These are undecidable or non-computable problems. In this case, algorithms lead to endless complexity and randomness, even as they may appear to logically infer a number of finite steps. These ideas permeated twentieth century, inter-war discourse across a number of disciplines, in light of the subsequent crisis of European reason and politics (Bates 2005, 3).

Furthermore, David Bates (2005, 9) has noted that post-structuralist theorists such as Roland Barthes and Jacques Derrida owe a debt of gratitude to Gödel. Controversial to this day, undecidability has been cited as integral to theorists of post-modern cultural theory and philosophy, particularly its justification that truth is not absolute but socially constructed. Derrida deployed the term 'undecidability' in relation to language in his own project of deconstruction, undertaking readings of texts that questioned the normative assumptions upon which Western binary logic had long been based. He named this logic 'phallogocentrism', in reference to its privileging of (white) male presence and binary logic. And, just as Gödel had created a system of codification whereby all classes of axiom could be described, Derrida also deployed meta- language, whereby language could begin to reflect upon its own operations.

Undecidability began to question normative assumptions and behaviours in epistemology and social systems, such as we see in the work of Georges Canguilhem, Michel Foucault's influential teacher. Canguilhem is credited with critique of '*the norm*', and with rendering previously held normative categories and ideas questionable, even obsolete (*ibid* 17). Foucault would famously continue this interrogation of the norm in studies on Modern European disciplinary institutions.

It seems strange that Gödel has not been acknowledged for the contribution he made to twentieth century logic. Or that the basis of his theorem was not considered more widely for its application in such a wide range of fields. I would like to acknowledge him here, first, for his theorem and its possible application in resisting and questioning simplified binary decision of any kind. And secondly, for his tragic demise that, it seems, was brought about by a representational gap in global feedback, and the incompressible complexity and loneliness that attends the anorexic in their attempt to defy unwelcome determination... //

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