From Slow to Cruel Technology

Exploring metaphoric ways to understand Critical Design
through theatre

A Master's Thesis by Mikkel Mathiasen

October 2nd 2023

MA in Interaktive Digitale Medier

Aalborg University

Data & Contents

Written by Mikkel Mathiasen

Supervised by Rasmus Grøn

34 Pages total – Main text is 90 549 characters with spaces (37,7 median pages)

Contents

Foreword

I want to take a moment to speak from the heart. These past couple of days, as I have been finishing this thesis, have felt very strange and been in stark contrast to the past three or so years. Having spent three years in depressive hibernation, I am truly satisfied with finishing this project. I have my doubts in terms of the intellectual content of my thesis, and its refinement, however to finally be able to say that I am *done* I think is more important than anything else. To once again *create* something, and release my self and my thoughts out into the cosmos; *that* is very gratifying.

I started writing on this thesis back in spring of 2020, before the pandemic lockdowns, and it is now fall of 2023; It has been almost four years and to still have the option to finish the project, to hand it in and attempt an exam, is something that I am truly grateful for. I would like to thank the secretaries of my study Pia Knudsen and Jette Due Nielsen, for the helpfulness and patience. And a special thanks goes out to associate professor Rasmus Grøn, my supervisor on this thesis, for not only providing strong academic guidance and some much-needed coherence to my project, but also for his incredible patience and understanding when it came to my situation (and the endless extensions).

Regardless of how things turn out when the exam comes, I am content.

I apologize for the raw reading experience in places.

- Mikkel Mathiasen

Intro & Problem Area

The relevancy of critical approaches to design is high as ever, as our lives become increasingly mediated and technologically dependent, so increases our need for reflecting critically on the technologies we use every day. The term *critical design* refers to both design processes and products aimed at furthering our relationship and understanding of our technological environments, Dunne defines it as:

> A design approach for producing conceptual electronic products that encourages complex and meaningful reflection on inhabitation of a ubiquitous, dematerializing, and intelligent environment: a form of social research to integrate critical aesthetic experience with everyday life. (Dunne, 2006, p. 147)

Bardzell et.al. (2012) describe it as a type of constructive design research "which seeks to disrupt or transgress social and cultural norms" (p. 288); critical design is about exploring new phenomena in our world, or providing unique, critical angles on existing ones. However, the particular *qualities* which constitute a "critical design" remain philosophical and vague, and there is a lack of methods or frameworks describing the *processes* specific to critical design (Bardzell & Bardzell, 2013; Bardzell et al., 2012).

Bardzell et.al. (2012) attribute this lack of critical design qualities and methods to critical design's reliance on *critical theory* which has a number of incompatibilities with design, namely that critical theory is *evaluative* whereas design is *generative*; critical theory seeks to understand phenomena as they appear, while critical design (should) seek to explore ways to affect existing phenomena, or construct potential new phenomena. Consequently, they call for the development of a more applicable framework for working with critical design;

> We are not suggesting that critical design should be expressed as a formal methodology such as those found in scientific research, but instead a loose framework that can help design researchers select and sequence methods that support the specific question, issue, or phenomena at the focus of their inquiry. (Bardzell, et.al, 2012, p. 289)

In my thesis I hope to contribute to such framework in the form of a different perspective on the critical design concept.

I will reflect upon the nature of critical design, particularly physical and metaphysical qualities of critical design artifacts. To this end I consider the concept of *slowness* and slow technology (Hallnäs & Redström, 2001) as subsidiaries of critical design, relating to two fundamental elements of Dunne's (2006) approach, hoping that I may understand what a digital artifact needs to do in order that it may incite critical reflection.

I believe Laurel's (1993) dramatic metaphor for computer interfaces to be a useful perspective on digital design, however it does not comply with the principles of the aforementioned theories, i.e. it suffers from an all-too-common fetishization of usability, which is why I intend to synthesize it with Artaud's (1938/1958) manifesto for the Theatre of Cruelty. I intend for this synthesis to produce an alternative metaphor for understanding electronic artifacts, specifically computers, as situated, *theatrical objects*.

I expect these theories will help make sense of critical design, suggest a theatrical approach to critical design with a framework based on devised theatre and Artaud, and aid in demystifying the term with more concrete examples and guidelines. These hopefully also allow me to argue for why performative and improvisatory methods are fitting candidates for critical design methods. In other words, I will work my way from the design-philosophical level where critical design usually linger, down to an applicable methodological level.
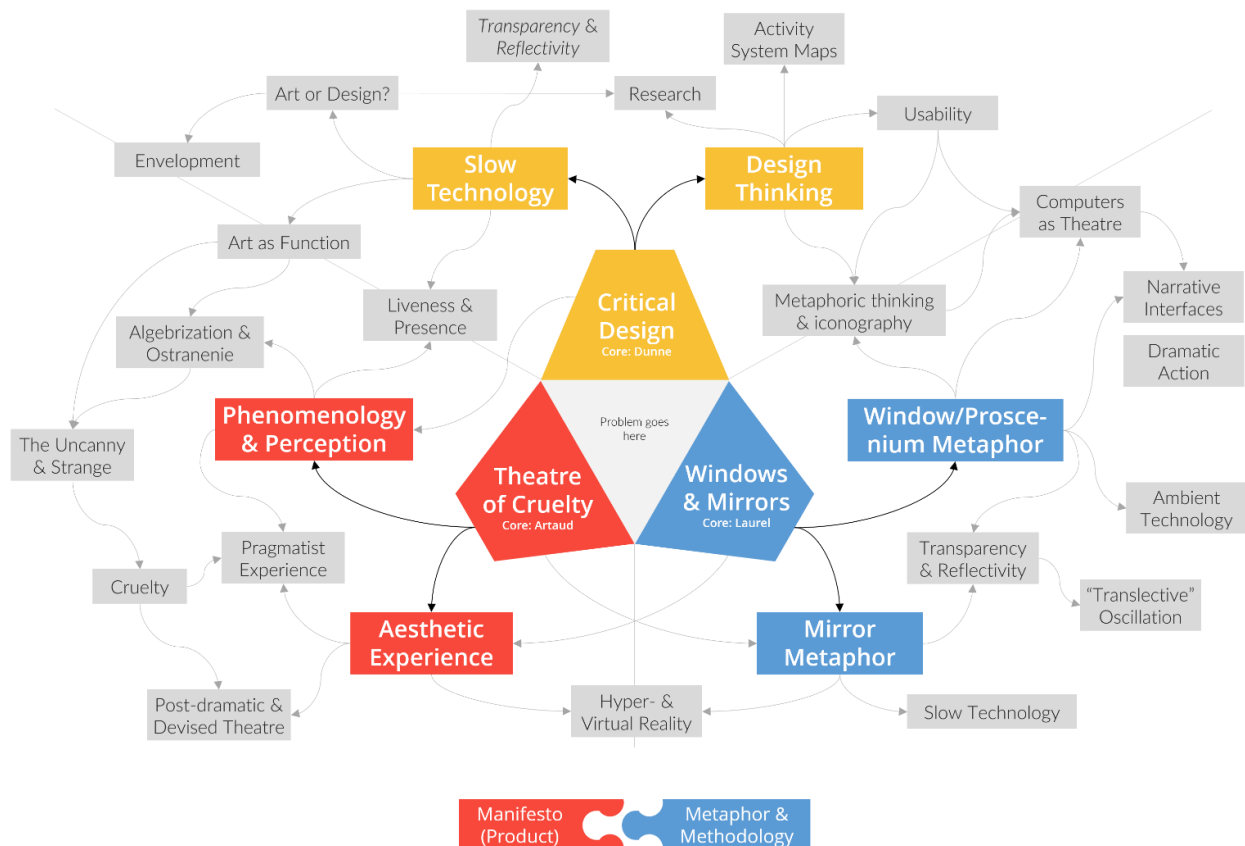
History & Process

Before I get properly started, I would like to add some more context to the project. It has taken me many years at this point to finish this project and I thought it appropriate to address how the project has developed so far, where is originally came from, and how I've organised my thoughts throughout.

Since before I started working on the project my thoughts and the theories that I formed them from I've been organized in a mind map of sorts, with the core theories as kernels and supporting theories and sources as satellites. The different concepts were then arranged such that their physical proximity correlated, roughly, to their intellectual content. Often I would connect satellites and kernels with arrows indicating where certain satellites originated.

The final layout that for the theoretical map was one with three distinct sections; the first dedicated to critical design as described, primarily, by Dunne, the second to metaphoric understanding of design and products – primarily Laurel's dramatic metaphor – and a third section dedicated to Artaud's theatre of cruelty.

The model has been particularly useful to better visualise how central the theatre of cruelty has become to this thesis. The fetishization of usability and efficiency in a lot of design literature has always been odd to me, coming from a bachelor's in art and technology. Without really realizing it at first, theories of art and aesthetic experience came to be the way that I understood critical design, and informed my critical view on Laurel's dramatic metaphor. I will describe my understanding of critical design through art theory in the following chapters, as well as my art-based critique of Laurel 's metaphor, but the model is a good way for me to quickly connect all three concepts. They of course have their own distinct literature and concepts, but they also share a lot of aspects, and it was very useful for me to have them visually connected.

The Lotus Model as of september 2023. I include a larger version in the appendix.

Looking at the model may or may not be useful to a reader, as I have not made it so as to convey my theories, but rather as a way for me to organize thoughts. The process of making the model was really much more important than the model itself. But of course, it still may convey a superficial understanding of my theoretical synthesis.

I called the model the Lotus model, because as the theoretical pieces started to fall into place, the model started to bloom in front of me on my screen, almost like a flower. It reads mostly like a conventional mind map, though.

Research Questions

I don't think I'm able to specify a very specific mission statement for this thesis, as it naturally developed into more of an exploratory project. I did have specific research questions and a proper problem statement, but ask the academic content of the thesis evolved it was no longer relevant. I will include below the last problem statement that I procure, but please note that it is not a problem statement that describes this thesis, but rather a historic origin of this current thesis.

The main question of the project, its problem statement so to speak, was: *How could collaborative, improvisational methods, primarily devised theatre, serve as a base for a critical design framework?*

Supplementary questions meant to guide me towards resolving the main issue were:

- What is critical design and why is it relevant?
- Why is it important for critical design to be especially *live* and *present*?
- How does *liveness* and *presence* relate to the needed *strangeness* of critical technology?
- Why is strangeness and similar difficult-to-describe aspects of critical design an issue?
- How could theories on the uncanny and bestrangement help make sense of the strangeness of critical design?
- What are the parallels between Artaud's Theatre of Cruelty and critical design?
- How is Laurel's conception of computers as theatre useful for critical design?

As the project developed, a greater focus on Laurel's metaphor and Artaud's Theatre of Cruelty started to unfold. I realised the incredible strength of Laurel 's dramatic metaphor, but also saw its shortcomings, and how I might be able to "patch up" Laurel's metaphor using artistic theory, Artaud especially, to make it more appropriate for critical design.

Critical Design

I originally encountered critical design in the form of slow technology, and my understanding of the more encompassing umbrella-term of *critical design*, has been heavily influenced by the more limited concept of *slow technology* as described by Hallnäs & Redström (2001). I will try my best to clarify what type of critical design that I am working with, or rather, what *aspects* of critical design that I have chosen to focus on.

Critical design is a constructive design research programme, which focuses on exploring and interrogating our social and cultural relationships through technological applications. As one of the founders of the programme, Dunne describes critical design as:

> a design approach for producing conceptual electronic products that encourages complex and meaningful reflection on inhabitation of a ubiquitous, dematerializing, and intelligent environment: a form of social research to integrate critical aesthetic experience with everyday life. (Dunne, 2005, p. 147)

Critical design is, as the name suggests, a design approach which takes a critical stance on our relationship with designed products as a society and as individuals.

This critical approach to electronic product design can take many forms and investigate many areas of our social and personal lives, so to help specify exactly what constitutes critical design, Dunne specifies six central elements of the programme.

> The most important elements of this approach are: going beyond optimization to explore critical and aesthetic roles for electronic products; using estrangement to open the space between people and electronic products to discussion and criticism; designing alternative functions to draw attention to legal, cultural and social rules; exploiting the unique narrative possibilities offered by electronic products; raising awareness of the electromagnetic qualities of our environment; and developing forms of engagement that avoid being didactic and utopian. (Dunne, 2005, p. 147)

Of these six elements the first two are of particular interest to me, as these echo the sentiments of Shklovsky (1917/2013) and Dewey (1934); much like art functions as a phenomenological catalyst, so does critical design serve to stimulate engaging perception of phenomena so that they may be properly experienced and reflected upon. By "going beyond optimization" and "using estrangement" critical design defies algebraic recognition and brings the associated technological phenomena to the forefront of one's cognition. One might say that critical design is *critical* because its function is to break the established habitual patterns and draws attention to phenomena than one may otherwise, unknowingly, disregard. This correlation is likely one of the reasons why art and critical design are often difficult to distinguish. However, where Shklovsky and Dewey see perception as an end in and of itself, Dunne expects more from critical design, as the revival of perception is only the first step in a larger critical design process.

That leaves me with two elements of critical design that I take particular interest in (from Dunne, 2005, p. 147);

1. going beyond optimization to explore critical and aesthetic roles for electronic products
2. using estrangement to open the space between people and electronic products to discussion and criticism

The Role of Critical Design

The role of critical design, whether as a process or product, is to facilitate an exploration of our relationship with technology, and furthering our understanding of how technological phenomena affect our lives and culture. While critical design is generally defined as a form of social research (Dunne, 2005), it is not just the ways in which technological phenomena facilitate or affect the relationship between people which critical design seeks to explore, but also how technology is perceived and experienced from an individual perspective; critical design can play both a *personal* and a *social* role. In describing the different elements of his approach, Dunne essentially states these two different, yet highly related, roles for critical design.

The *personal* role correlates with critical design's aspect of "using estrangement to open the space between people and electronic products to discussion and criticism" (Dunne, 2005, p. 147), that is, examining the perceptual, phenomenological relationship which we each construct with technological phenomena. A way to describe design which seeks to fulfil this role, is that it strives to be *slow*. This term is from Hallnäs & Redström's (2001) concept of *Slow Technology*, which is a design programme seeking to emphasize or amplify the presence of technological phenomena, so that we may reflect upon their functions and our relationship with technology as *individuals*.

The *social* role correlates with the aspect of "designing alternative functions to draw attention to legal, cultural and social rules" (Dunne, 2005, p. 147), that is, seeking to understand the ways that technological phenomena function in sociocultural contexts, rather than the immediate relationship between person and product. This seems to be the focus of most critical design literature, not exploring aesthetics and perception of technology "merely" for the sake of aesthetic experience, but examining how we might apply critical design in social engineering and research (J. Bardzell & Bardzell, 2013; S. Bardzell et al., 2012). When playing this role, critical design can be described as a particularly technologically focused form of action research.

A way to visualize this distinction of roles, is that the first role has critical designers explore the space between people and technology (human-machine), while the second explores the space between people and other people (i.e. between societal groups, communities, several individuals, etc.), as facilitated or affected by technology (human(s)-machine-human(s)).

Views of critical design's space for phenomenological (left) and sociaocultural (right) exploration
update this visualization?

Obviously, our individual, technomediated lives depend on our social lives and cultural contexts, and vice versa, and so the role of critical design is not reduced to two separates spaces so easily. However in this thesis I separate the *personal* and *social* role of critical design for the sake of clarification: my interests for this thesis lie with what critical design has to offer for the individual, the *self*. In other words: I seek to investigate the sensorial, phenomenological and emotional aspects of Critical Design.

That does not mean, however, that the theories and the methods that are discussed in this thesis will not also be useful in in critical design for social research purposes, because the personal role of critical design is not so much separate from its social role as it is *precursory* to it.

Critical *Presence* & *Slowness*

As mentioned, the concept of Slow Technology described by Hallnäs & Redström (2001) was my first encounter with Critical Design, and by addressing the specifics here I hope to establish, broadly, the qualities of Critical Design that I am working from. I understand the programme of Slow Technology as a subset of Critical Design; I think it describes specifically what it means to go "beyond optimization to explore critical and aesthetic roles for electronic products" (Dunne, 2005, p. 147).

> We do not put the main focus on what technology can be used for but on what it means
> to use it, to master it, how it expresses itself in use. (Hallnäs, 2015, p. 30)

A primary theme in slow technology is *presence*; the presence of a technology, its relationship with the self and with the environment. When a technological phenomenon is *present* it is so because it is subject to perception; it is seen, heard, *felt*, by the people with which it is temporally and spatially present. A technology which is *slow* is designed is such a way that only through extended – and conscious – exposure to the phenomenon may one fully comprehend it. Slow technology cannot be understood immediately through standard or algebraic symbolism, but required conscious effort to sense.

We can compare the two doorbells with, say, the distinction between fast-food such as readymade hamburgers and a gourmet meal. In both cases it is food to eat, but there is a fundamental difference in appearance. While the readymade hamburger is all about fast, efficient uniformity – the mechanisation of eating – gourmet cuisine is slow food, in terms of both preparation and eating, which invites us to reflect on the art of cooking as well as the art of eating. It is in a certain sense a question about functionality versus aesthetics. (Hallnäs & Redström, 2001, p. 203)

Experiencing technology, the phenomenological qualities of critical design, that is the focus of Slow Technology.

Hallnäs (2015) describe slow technology as a counter-agenda to *usability*, as usability asks designers to optimize products for functionality and *efficiency*, with no regard to the way this approach might diminish the inherent characteristics of the technology itself. Nielsen (1994) describes the quest for usability as essentially being a quest for *faster* operation of technology. Aspects such as learnability, efficiency, and memorability can be evaluated in terms of how *quickly* a user learns to use a system, how *fast* the user is able to become over time, or *how long* it takes to remember certain elements or actions. The doctrine of usability is one which seeks to lessen the cognitive and temporal load on the users of a technology, but inevitably ends up hiding away its natural allure behind metaphors, abstractions and simplified symbols. Technology which is *fast* is useful but meaningless, "slowing down" technology helps one properly perceive it and attribute it meaning.

> Slow technology is a general programme for critical design. This is a programme for design as counterexamples and counteractions to the agenda and ideology of usability. Here we strive to introduce design that opens up for reflection and provide time for reflection through intrinsic slowness. (Hallnäs, 2015, p. 37)

Usability is fundamentally incompatible with Slow Technology, and by extent most facets of critical design, as it aimed at achieving *recognition* rather than *perception*, a distinction which Dewey (1934) made clear to be core to aesthetic experience.

This opposition to usability is also the reason why Hallnäs (2015) distinguishes slow technology from *calm technology* and *ambient displays*; while these doctrines also seek to make use of spatial and temporal presence with technology, they share the reductive nature of usability.

> A basic principle of slow technology is to *amplify the presence* of things to make them into something more than just a silent tool for fast access to something else. This amplification is not just a matter of aesthetical surface, but concerns the whole thing as it is used. We do not talk about functionality and design, but about the complete expression of a thing as it appears in the given context. (Hallnäs & Redström, 2001, p. 209)

An important take away from the discussion of slowness and presence, is that critical design (of the nature I explore) needs to avert from usability and similar *user-friendly* or *efficiency-focused* doctrines. I have chosen to adopt theories that directly oppose usability in this thesis.

While I have to defined Critical Design as a *research programme*, it is perhaps more appropriate to refer to it as a high-level design *strategy*; it lacks tangible guidelines and methodologies, and struggles on a practical, operational level. Critical Design does outline a general approach and philosophy, and can in turn point in the direction of certain applicable methodologies and conventions.

The direction that I wish to point in, is towards *presence* and *performativity*. Slow Technology is the first step towards that end, and in the following chapter I reflect upon the artistic qualities of critical design, specifically how critical design products might function more as art then "mere" products.

Commence Criticality

I wish to touch upon the similarities between critical design and art. While design and art have always had certain overlaps, critical design is particularly difficult to distinguish from art. Of course, this difficulty depends on the school of art one follows; for a formalist the distinction between design and art might be very clear, but for modern performative artists a distinction is not so easily made.

I, for one, do not wish to separate design or art in any way, but I will use particular artistic theory, in this chapter, to further clarify how I view critical design. I especially want to draw attention to the writings of Shklovsky (1917/2013) and Artaud (1938/1958).

> Critical design [...] is a research strategy dedicated to transgressing and undermining social conformity, passivity, and similar values of capitalist ideology, in hopes of bringing about social emancipation. (Bardzell & Bardzell, 2013, p. 3298)

The above quote is reminiscent of the goals which Shklovsky (1917/2013) sets for art as a carrier for *ostranenie*, and Artaud's (1938/1958) reasoning for his Theatre of Cruelty as an immediate, virtual reflection of reality. This is interesting because Shklovsky and Artaud write about their ideals of immediacy and perception – about the importance of the experience which the individual has with art and theatre respectively – as an *antidote* to the sterile and meaningless attitude towards life itself which is prevalent throughout the whole of society. They see the modern and "civilized" human as one which is castrated their own perceptive processes, and in place of it relies on algebraic symbolism and formulae; the modern human *recognizes* and *does*, but they do not *perceive*.

Dunne mentions that 'a slight strangeness is key' for critical design, and directly references *estrangement* as a key tool. The term originates from Shklovsky's (1917/2013) writings about the technique of art. Shklovsky believed that all art has the unique ability to make phenomena feel strange and unfamiliar, he called it *ostranenie*. Lane (the translator of Shklovsky 1917/2013) translates the original term *ostranenie* to *bestrangement*, but the term is more or less synonymous with the term *estrangement* used by Dunne (2005). Ostranenie is the "technique of art" (Shklovsky, 1917/2013) and describes man-made phenomena which confronts the individual with their repressed and algebrized perceptual patterns, and evoke a primordial manner of perception which is *naturally* engaging, marked by exploration, curiosity, and critical thinking. Ostranenie does not increase the mental effort required to observe a phenomenon beyond any natural condition, rather, it re-establishes the native perceptual relationship between the self and the bestranged phenomenon.

> And art exists that one may recover the sensation of life; it exists to make one feel things, to make the stone *stony*. The purpose of art is to impart the sensation of things as they are perceived and not as they are known. (Shklovsky, 1917/2013, p. 11)

Shklovsky (and Artaud) saw modern individuals as having made themselves detached from the physical world they inhabit, by means of automating and trivializing perception. Shklovsky calls it *algebrization*, as people, often involuntarily, economizes their sensing of phenomena.

> By this "algebraic" method of thought we apprehend objects as shapes with imprecise extensions; we do not see them in their entirety but rather recognize them by their main characteristics. [...] The process of "algebrization," the over-automation of an object,

permits the greatest economy of metal effort. Either objects are assigned only one proper feature – a number, for example – or else they function as though by formula, and do not even appear in cognition (Shklovsky, 1917/2013, p. 11)

There is a direct correlation between what Artaud sees the theatre as being able to, and what Dunne wants to achieve with critical design. Dunne writes that critical design is an approach which uses "estrangement to open the space between people and electronic products to discussion and criticism" (Dunne, 2005, p. 147). Effectively, Artaud wants his theatre to do the same, albeit with a greater emphasis on aesthetic experience. Dunne's approach is specific in terms of the type of phenomenon to "open up" – i.e. using electronic products, human-computer-interaction – but it offers no methodology or characteristics of its products. Artaud's manifesto on the other hand, is specific in terms of the methods and principles to apply, i.e. performance and spectacle (though there is plenty of room to wiggle around in still) but the "dormant images" he wishes to invoke remain vague, or rather, general; anything may be the subject of the Theatre of Cruelty. Artaud's theatre uses estrangement to open up the space between people and *life*, i.e. any phenomenon really; not any particular technology, activity, object type, etc. One might say that theatre is able to open up the space between *self* and *other* in a general sense.

The argument here is that Artaud is useful in critical design because he presents a proper framework, principles and ideals to work towards, something which critical design lacks.

In terms of critical design's element of "[exploring] critical and aesthetic roles for electronic products" (Dunne, 2005, p. 147), Artaud has a similar idea for his theatre, in that it should explore the and expand upon the possibilities of theatre as a medium, and his suggestion that the essential theatre is physically and culturally embedded in a society.

Artaud (1917/2013) distances himself from the insular, commercial culture of the proscenium stages, citing the primal human condition as the progenitor for his theatre. Much like how Critical Design is concerned with engaging democratically and reflectively with the products and cultures of "everyday life", so is Artaud. If Critical Design is "a form of social research to integrate critical aesthetic experience with everyday life" (Dunne, 2005, p. 147), then the Theatre of Cruelty may be described as a form of culturally critical performance to integrate critical aesthetic experience with everyday life.

When Bardzell & Bardzell (2013) write that Critical Design hopes to bring about "social emancipation", they parallel Artaud as he directs the theatre to bring the cruelties of life to the forefront of our attention. Similarly to the two-pronged role of critical design – the personal and cultural roles – the Theatre of Cruelty operates on a societal level, but *through* the individual, through perceptual confrontation with the *self*, society as a whole may in turn experience a form of release.

Both Artaud and Shklovsky describe this develop towards efficiency and perceptual economization as a cultural phenomenon, and not a good one at that. They saw a culture which fetishizes efficiency and usability. Their writings seem to not just describe what art could potentially provide, but to also be a call for action, for the people to start *experiencing* art, to take their perception seriously, to maintain the primal functions which makes us human. Artaud described the modern civilized man as monstrous, indicating a degree of inhumanism in not being phenomenologically connected with our physical and cultural environments.

Artaud and Shklovsky principally seek to confront the *individual* with their own habitualized and castrated perception, but in turn art and theatre serve a function on a social scale to reengage the perceptive processes of the *people*.

How hard is it, when everything encourages us to sleep, though we may look around us with conscious, clinging eyes, to wake and yet look about us in a dream, with eyes that no longer know their function and whose gaze is turned inward. (Artaud, 1938/1958, p. 11)

I believe it is important for Critical Design to start on a personal, sensory level as well, just as Artaud and Shklovsky start with the self, because only once we understand our *personal* relationship with the media may we understand how that relationship in turn effects the way we interact with other people through technology.

The technique of art is to make objects "unfamiliar," to make forms difficult, to increase the difficulty and length of perception because the process of perception is an aesthetic end in itself and must be prolonged. (Shklovsky, 1917/2013, p. 11)

Art is a way of experiencing the artfulness of an object; the object itself is not important. (Shklovsky, 1917/2013, p. 11)

Artaud's Cruelty

Artaud (1938/1958) and Shklovsky (1917/2013) have similar reasoning behind the Theatre of Cruelty and ostranenie as the function of art, respectively, in that they both serve as a form of "antidote" to certain tendencies in their respective, contemporary cultures.

For Shklovsky, art serves the purpose of breaking habitual behaviour and symbols through the technique of ostranenie; art breaks monotony, it wakes one up and opens one's eyes to the world as it really is. In Shklovsky's view, algebraization is a natural and useful mechanism, after all, it "permits the greatest economy of perceptive effort" (Shklovsky, 1917/2013, p. 11), however it is not always harmless, as it inevitably "devours" life's meaning. Art is the countermeasure against the malignancy of life that is algebrization.

Artaud's reasoning for the Theatre of Cruelty is very similar to Shklovsky's argument for art. Artaud identifies a cultural tendency that more or less boils down to a culture-wide fetishization with algebrization. The cultural "ideal" attitude with which to approach the world and its phenomena has become far removed from the phenomena themselves and preoccupied with their algebraic symbols and patterns;

A cultivated "civilized" man is regarded as a person instructed in systems, a person who thinks in forms, signs, representations – a monster whose faculty of deriving thoughts from acts, instead of identifying acts with thoughts, is developed to an absurdity. (Artaud, 1938/1958, p. 8)

Here Artaud describes two manners of perception. "Deriving thoughts from acts" compares with the algebraic method of associating impressions with reductive symbols and patterns, the incomplete, but highly efficient, processes of algebrization and recognition; here one's thoughts remain within the endless echo chambers of the skull. When "Identifying acts with thoughts", the "outside" is the subject of thoughts; impressions are treated with conscious care, perceived fully, and given meaning through their relationship with the self and the environment.

The "civilized" individuals which Artaud see in the cultures of the 30's practice algebrization; approaching phenomena with the most efficient mental economy that their habitualized psyche permits. He describes a culture of recognition rather than perception, one which disregards the phenomenological manifestations of phenomena, and by extent disregards life itself. And just as Shklovsky prescribed art to relinquish us from the choking clutches of habitualization, so does Artaud ascribe the same function to the theatre. However, it is not just any theatre which may provide this antidote.

The fetishization with economized symbols extends into the realm of theatre as well, specifically the classical proscenium theatre. Just as Blau (2011) describes the highly rehearsed and curated experience of theatre as lacking in liveness, so did Artaud argue that the supposed intellectual practices of the theatre in the 30's had lost its spark, its connection with the lives of humans severed by its obsession with symbolic and superficial representations. Just as Laurel's (1993) metaphorical representations rely in recognizable elements and the emotional safety afforded by imaginary spaces, so does the institutionalized theatre.

When describing what theatre should be, or rather theatre's *true nature*, Artaud compares it with the plague;

> The plague takes images that are dormant, a latent disorder, and suddenly extends them into the most extreme gestures; the theatre also takes gestures and pushes them as far as they will go: like the plague it reforges the chain between what is and what is not, between the virtuality of the possible and what already exists in materialized nature […] The theatre restores us all our dormant conflicts and all their powers, and gives theses powers names we hail as symbols: and behold! before our eyes is fought a battle of symbols, one charging against another in an impossible melée; for there can be theatre only from the moment when the impossible really begins and when the poetry which occurs on the stage sustains and superheats the realized symbols. (Artaud, 1938/1958, p. 27-28)

In describing the effects the plague has on society, Artaud describes it as emphasizing and exaggerating certain collective, algebraic symbols, to the point where the plague essentially functions as a massive, defamiliarizing, cooperatively performed piece of art. The plague confronts *us*, the collective, society en masse, with our collectively repressed thoughts and behaviour, our primal practices, with the acts and images that through shared habitualization we have lost our mental grasp on.

The essential theatre function in the same way as Shklovsky would want art to function. Key concepts here are "dormant images" and "extremes gestures"; the subject matter of the Theatre of Cruelty is really quite familiar, however its presentation extends into the surreal and unknown, giving it its bestranging qualities.

> If the essential theatre is like the plague, it is not because it is contagious, but because like the plague it is the revelation, the bringing forth, the exteriorization of a depth of latent cruelty by means of which all the perverse possibilities of the mind, whether of an individual or a people, are localized. (Artaud, 1938/1958, p. 30)

Envelopment
Hallnäs further complicates the distinction between Critical Design and art as they describe the process of developing Tlow Technology. Hallnäs describes an approach, or attitude, to constructing digital artifacts which they call *envelopment*. This approach is similar to conventional *development*, but focuses on aesthetic exploration and immersion into digital mediums as ways to generate designedly knowledge, rather than conventional methods.

The goal with envelopment is for designers to expose themselves to the natural qualities of technology, and undergo the reflective experiences which characterize slow technology. Through such process designers develop an understanding of how they may in turn construct such experiences for others.

The interesting thing about this method is how similar it is to the general approach to artistic "development" – here I would point to Dewey's account of the artist being an audience of their own act of creation when working, i.e. aesthetically experiencing their own work and processes. Envelopment smells a whole lot like artistic practice.

As we manipulate, we touch and feel, as we look, we see; as we listen, we hear. The hand moves with etching needle or with brush. The eye attends and reports the consequence of what is done. Because of this intimate connection, subsequent doing is cumulative and not a matter of caprice nor of routine. In an emphatic artistic-esthetic experience, the relation is so close that it controls simultaneously both the doing and the perception. (Dewey 1934, p. 51)

Windows and Mirrors – A Physical Metaphor

The opposing ideals of usability and slow technology are reminiscent of the metaphorical dichotomy of the *window* and the *mirror* presented by Bolter & Gromala (2003). Bolter & Gromala present two modes of perception of digital interfaces – *transparency* and *reflectivity* – which describe the perceptual relationship between media, content and user, using the material properties of glass as a metaphor. This metaphoric premise will serve as an intro into metaphoric languages, as it is the simplest, and perhaps most philosophical, of the ones I will discuss.

The metaphor addresses media specifically, but I believe it is applicable to a lot of technology; the terms *media* and *content* being easily expanded by calling them *technology and* function.

When media is transparent it functions like a window, letting the user (or the viewer) perceive some sort of content with as little distortion as possible. There is a world on the other side, and through the window we can observe it, but the window itself is not important, it is not seen. If we were to observe a phenomenon through a perfectly transparent medium, it would appear completely visceral, tangible; it would appear as if we were physically present with it.

> Think of the computer screen as a window, opening up into a visual world that seems to be behind or beyond it… Concentrating on the text and images the user forgets about the interface, and the interface becomes transparent (Bolter & Gromala, 2003, p. 26)

When writing about transparency Bolter & Gromala (2003) refer to it as the *myth of transparency*, because realistically speaking transparency of this sort is unattainable. Any window, regardless of how perfectly transparent its glass is, will still have the need for a frame, it will still have a place where it sits in a wall, and looking through the window the world that we observe will necessarily be from the perspective and the framing of that window. To be in the world on the other side of the window is impossible when just looking through it. This is why Bolter & Gromala calls it a *myth*; the quest for transparency is doomed to fail (at least with our current technology), because the techniques and technologies of media inevitable impart some of their characteristics on its content. And in the case of interactive digital media, the activity of operating the physical and virtual equipment is an activity which is its own, a phenomenon distinctly different from the content "behind the glass."

The mythical quality of transparency has of course not stopped interface design from fetishizing transparency, particularly in the form of usability, but it is ultimately a fallacy to believe that mediation can be perfect.

The window metaphor enables the use of a different language to describe certain qualities of media, and technology in general. In this case the physical properties of the window are tangible and references an object that most individuals have very real, physical experience with. One might say that the metaphor "opens up the space" for discussion of media for everyone, regardless of specialized knowledge.

In respects to critical design, transparency would be a characteristic of fast technology. This is because transparency in, say, a digital interface, will allow the user to focus on the content the interface presents, or

the function which it serves, without having to think about how to actually operate or relate to the interface; the interface itself is quick to use.

When an interface is not transparent, it may instead be *reflective*, in which case it functions like a mirror, letting the user see themselves using the interface, and the context in which the interaction takes place. As a mirror an interface does not display its content or its function but instead reminds its user of the *ways* in which it performs its function, and the relationship between user and technology.

> There are times however, when the user should be looking at the interface, not through it, in order to make it function [...] at such moments the interface is no longer a window, but a mirror, reflecting the user and her relationship to the computer. (Bolter & Gromala, 2003, p. 26)

When looking into the metaphorical mirror one does not see symbolic and abstracted simplifications intended to make the interaction faster, but instead sees intricate systems, equipment, layers of interactions and dependencies; the reflection that one sees is of one self in a situation of interacting with complex and layered technology. The important thing about this reflection if that is not a technologically tinted vision of a temporal or spatial *other* – like any mediated content – nor is it a task which is bound up in our wishes for what the future might look like. When technology is reflective it is immanently *present*; it exists in a moment, constrained by time and space, in a situation alongside the self. This concept of reflectivity is very similar to that of slow technology's *presence*, though more personal.

The goal of slow technology is ultimately for designed products to be reflective, for them to be perceived not only for their functions as tools or for the content that they may mediate, but also for the inherent qualities that they possess and the role they play relative to the self and to the contexts in which they exist.

Boelter & Grusin (1999) write about *immediacy* as a concept which describes the degree to which we are able to forget mediation technologies when we engage with virtual worlds; the predecessor for transparency. However, immediacy is also useful for describing the relationship that we have with slow technology, but in this case the closeness is not felt with the virtual world (i.e. task or content) but rather we feel connected with the technology itself, it's equipment, and the environment. The immediacy characteristic of transparent media is one of forgetfulness and algebrization, whereas the immediacy characteristic of reflective media is one of phenomenology, perception and aesthetic experience. I will bring up this distinction again, but I wanted to establish here that immediacy is always relative.

What we may take away from the concepts of transparency and reflectivity, is that no technology, no designed product, will ever be fully transparent or fully reflective, after all "every digital artifact oscillates between being transparent and reflective" (Bolter & Gromala, 2003, p. 6). We also learn of a different metaphor than slow-food; the mirror. Hopefully this analogy is useful in understanding the experience of interacting with a slow, critical product. Again, there is emphasis on the physical environment for critical design research, as the reflection which we see in "reflective technology" is not just of ourselves but of our physical, and sociocultural, context as well.

> If we only look *through* an interface, we cannot appreciate the ways in which it shapes our experience. We should be able to enjoy the illusions of the interface as it presents us with a digital world. But if we cannot also step back and see the interface as a technical creation, then we are missing half of the experience that new digital media has to offer. (Bolter & Gromala, 2003, p. 27)

I start with the window/mirror metaphor, because it introduces a number of terms, namely media transparency and reflectivity, and because it exemplifies a metaphoric way to think and talk about media

phenomena in a philosophical way. While the window/mirror metaphor works well for describing human experiences with media, and how one's perceptive focal point moves over the individual phenomena in such experience, the metaphor does not afford any specific tools or methodologies for working with said media. It doesn't have to, of course, but other metaphors may provide such affordance. The methodological void from this transflective metaphor also seems to parallel that of Critical Design, which too linger in upper, philosophical layers.

On the Purpose of Metaphors

Besides providing an alternative language for discussion, metaphors also provide in the form of the history and methodology of theatre. I will not argue that theatre (or *performance* in a broader sense) and its methods are inherently better suited for conceiving phenomena of critical or slow character, than conventional digital design methods, or other artistic methodology, but rather that there are historical and contemporary cases of phenomenologically focused, critical and bestranging approaches to theatre, which we may learn from. Devised theatre, post-dramatic theatre and of course the Theatre of Cruelty are examples of performance wherein the form, structure or process of creation have established principles based on how, when or where we perceive the medium of theatre.

The point is that one may be able to apply the principles of post-dramatic, cruel or devised performance in critical design, but to do so one would have to understand how electronic technologies can be envisioned like a performance; the stage or context, characters, progression of "plot", etc. An elaborate metaphor, like Laurel's, serves to help translate performance theory to electronic phenomena.

In the case of Laurel's dramatic metaphor, viewing the computer as a theatre, and interaction therewith in a way similar to a stageplay, allows her to apply certain ways of making sense of the *action* (i.e. what happens on the "stage"), and to design interactions based on classical dramatic theory.

Just as programming languages are representational of machine code, and allow programmers to understand and manipulate the workings of a computer more easily, so is the metaphorical interface representative of the programmers' code, and allow non-programmers to understand and manipulate the computer. However, designing an interface which is both representational of functionality *and* understandable without intricate knowledge of said functionality is not easily done. A metaphor serves as a metaphysical fourth layer to help designers navigate this difficult challenge, and as Laurel (1993) puts it: "attempts to bridge the interface gulf by representing the world of the computer as a collection of objects that are directly analogous to objects in the real world" (p. xviii).

The usefulness of metaphors thus lies both in their ability to assist designers in composing interfaces, as well as warranting a particular way for users to understand and operate them, the former if which is most interesting for this thesis.

Beyond their rational and practical affordances, metaphors may also help bridge a gap between humans and their products that is more primal, or emotional, in nature. It is not always just about *thinking* about thing is certain ways, but also about *feeling* a certain way about them; a familiar metaphor can commune with the often much less tangible aspects of human emotions. The capacity to provide emotional comfort seems to be a particularly important aspect of Laurell's dramatic metaphor, and I discuss it more in detail in following sections.

I will stress however, that the main strength of metaphors is in their capacity to expand language and include a greater variety of methodology.

> The fixation of the theater in one language--written words, music, lights, noises--betokens its imminent ruin. (Artaud, 1938/1958, p. 12)

Computers as Theatre – A Dramatic Metaphor

Having established that critical design – or at least the subsection that is slow technology – is in ways a programme which relies on the presence of electronic technologies, I will now take a step away from the philosophical perspective, and try to make sense of theatricality in more practical terms. To this end I consult Brenda Laurel's (1993) conception of *computers as theatre*, and Antonin Artaud's (1938) critique of theatre in the 30's and subsequent manifesto for his *Theatre of Cruelty*.

Discussing Laurel's (1993) metaphorical conception of the computer is the first step. Laurel's presents a seemingly "theatrical" perspective on electronic phenomena, specifically interfacing with a computer, but how her approach is considered theatrical is quite different from the definition that I have come to in the previous chapter. Rather than focusing on how a technological phenomenon is perceived, contextualized and understood through our senses, Laurel seeks to view a computer metaphorically *as if it were theatre*; the screen is a stage, users and software are props and characters, and the interaction is thought of as plot or *dramatic action* (Ryan, 2002).

I see no inherent issue with a different theatrical approach, but I am not convinced that Laurel's metaphor is directly related to the particular concept of theatricality that I discussed in previous chapters. In other words, I do not see how Laurel's dramatic metaphor is specifically well suited for designing critical or slow phenomena, especially in light of how she presents the metaphor as oriented towards achieving *usability*. However, I do believe that the notion of using theatre as a metaphor for electronic phenomena is sound, because of the history and methods of performance. To avoid confusing the terms I will refer to Laurel's metaphor as *dramatic*, while the term *theatricality* will designate qualities of liveness and presence, as previously discussed.

To understand how Laurel's dramatic metaphor may be (or become) useful for designing slow technology I consult Artaud's (1938/1958) concept of the Theatre of Cruelty, as this version of theatre is far more aligned with the ideals of slowness, theatricality and defying transparent algebrization, compared the classic proscenium theatre which Laurel relies on. The Theatre of Cruelty is a useful reference point for understanding the shortcomings of Laurel's metaphor, and will serve as the base for an alternative version of the theatre metaphor focused on reflectivity, cruelty and of course *theatricality*.

At this point I will make it clear that there are other schools of performance to draw from, and potentially some which are at least as relevant as Artaud and devised theatre, but my familiarity with these specific theories, and their affinity with phenomenology and theatricality, makes them obvious choices for this thesis.

Laurell writes about the "computer" as theatre, this really could be any digital equipment; in this case a "computer" is the physical constituents of a digital system. In my understanding, Laurell's idea of a computer is equally as encompassing as the "ubiquitous, dematerializing, and intelligent environment" mentioned by Dunne (2005, p. 147).

Laurel's Dramatic Metaphor

Much like Aristotle in his *poetics* presented a set of rules for how to structure a dramatic play on a stage, so does Laurel seek to present a general theory of "poetics of human-computer activity" (Laurel, 1993, p. xix). She describes her book as "[attempting] to provide a comprehensive theory of form and structure for

representations in which both humans and computers participate" (ibid.), and to this end she correlates the elements of classic proscenium theatre with a computer and a human interacting.

Her metaphor is intended to assist designers in understanding and developing digital interfaces, by rendering the languages of the theatre and storytelling onto digital environments.

The underlying principle of Laurel's theory is that metaphors are useful tools when humans need to relate and interact with electronic systems, because such systems are complicated and alien, and a metaphor is able to present these systems in more human and relatable way. Computers are complex and thus difficult to understand, and ultimately the technical aspects of a technological phenomenon are not important next to the human-machine cooperation and the *action* which it produces. Or that is at least how Laurel sees it.

> The story of interface design, since the advent of the Macintosh, has been shaped by a very simple and very powerful idea: computers are ugly, fearsome, inhuman, and they make people feel inadequate; it is therefore necessary to hide them behind a metaphor that will make them pass for something else. (Ryan, 2002, p. 583)

As Ryan (2002) puts it, metaphors (here she refers to Macintosh's virtual *desktop*) address an emotional, and maybe even primal, response to machines; fear, uncertainty and unfamiliarity are replaced with comfortable familiarity and a sense of understanding. By using metaphors designers are able to veil the full extent of the cold and incomprehensible machines that they (and the engineers they may collaborate with) create, instead presenting a carefully curated and more humanly sociable shell. Metaphors speak to user-*friendliness* one might say. *User-friendliness* and *usability* being two similar but distinct concepts, as the latter is almost entirely practical, while the former is emotional.

In addition to promoting *usability*, Ryan points to a dramatic metaphors' function as an emotional surrogate, specifically using narratives to make sense of technology;

> Storytelling provides an antidote to the cold indifference, rigid determinism and unbending logic of the computer. It gives a human face to the machine – the face of compassionate computing. The metaphor also gives a voice to a widespread nostalgia for an age when the tasks of everyday life could be performed through a set of tools whose functioning people could easily understand. (Ryan, 2002, p. 585)

The particular metaphor which Laurel presents, is in response to what she recognizes as the inadequacy of the desktop metaphor (and similar, object-oriented metaphors);

> Direct-manipulation systems, like the Macintosh desktop, attempts to bridge the interface gulf by representing the world of the computer as a collection of objects that are directly analogous to objects in the real world. But the complex and abundant functionality of today's new applications – which parallels people's rising expectations about what they might accomplish with computers – threatens to push us over the edge of the metaphorical desktop. The power of the computer is locked behind a door with no knob. (Laurel, 1993, p. xviii)
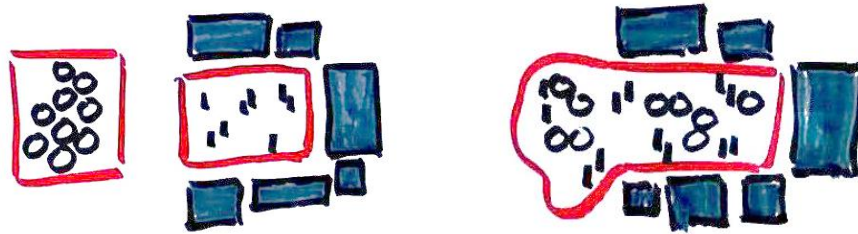
The logic is, that the convention of viewing a computer as an assortment of tools does not afford the required understanding and relatability that stories do. Rather than representing the computer as a tool, Laurel focuses on the interaction between the computer and its user, and imagines it as dramatic *action*.

"Traditional" tool-metaphors compare digital functionality to physical objects with physical properties. Laurel's dramatic metaphor includes objects, but focuses on interactivity, extending the metaphor into a

fourth dimension: time. An important dimension for human experience is time (Dewey, 1934), and this additional aspect seemingly would help to humanize the interaction.

As the user and the computer interact, a space forms for the "action of the interaction" to take place, an imagined space which can be understood in the same way as a story transpiring on a stage.

Whatever objects may be present on the screen, which conventionally would be tools or functions, become characters and props on the stage, and the user, which conventionally exerts their power from an external position, is "absorbed" into the virtual space to interact with the newly formed props and characters.

The classic proscenium stage with audience and stage as two separate
spaces (left), & Laurel's shared representation with "backstage" elements (right)

The screen serves the purpose of a stage (Ryan, 2002), however the action does arguable not take place on the stage, as the virtual *representation* is more of an imagined, metaphysical interaction space, than a physical location.
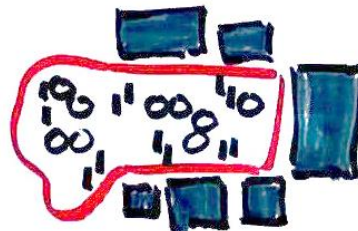
One implication of the desktop, dramatic or narrative metaphor is that the medium which the computer itself is, is obscured, or even hidden completely.

Recognizable Representations

At the very core of Laurel's metaphorical conception is the idea is the *representation*, that is, that the action taking place in the stage/screen is more important than any other aspect, so much so, that if something is not part of the "performance" it does not matter;

> The representation is all there is (Laurel, 1993, p. 17).

Laurels metaphor is a representation of the computer as something tangible, something with which one has experience with and can relate to. The irony here is that the representation is recognized in a similar way to physical phenomena, but is completely virtual, or rather, imaginary. Laurel's representation constructs a virtual bubble, supported by the users algebrized symbols. In an extreme sense, the physical manifestation of the interface only exists to bring forth the necessary subconscious thoughts to construct the virtual play.

imagine here an amoeba-looking drawing
Laurel's representation (left) and my backstage-encompassing version (right)

In Laurel's own visualization she only includes the "backstage" elements in her visualization of the classic proscenium, as the user-computer shared *representation* does not care for the supporting elements. It is clear that there is still some backstage element(s) in Laurel's representation, but as with the proscenium

stage it is completely obscured so as to give focus to the action, and I assume that is why she neglects to visualize it. In the terms of Bolter & Gromala (2003), Laurel's representation renders the computer *transparent*, as it attempts to represent the action as undisturbed by its underlying structure as possible; the technologies and techniques supporting the representation disappearing behind a veil of comfortable familiarity, and the "performers" – i.e. user and computer functions – blissfully unaware of themselves.

With Laurel's metaphor designers are able to rely on *recognition*, rather than present how the computer works *as is*. What I mean by that is that rather than having users make sense of the sensations imparted on their eyes, ears and fingertips, these (and the computers physical form) are masked with recognizable symbols and behaviour, allowing the user to recognize the functionality with tangible analogies. There are implications with relying heavily on recognition as the means to understand a phenomenon, particularly that it hinders the proper perceptive processes necessary to make sense of the phenomenon itself and not just the function it serves in the given context. As Dewey puts it;

> Recognition is perception arrested before it has a chance to develop freely. In recognition there is the beginning of an act of perception. But this beginning is not allowed to serve the development of full perception of the thing recognized. It is arrested at the point where it will serve some other purpose, as we recognize a man on the street in order to greet or avoid him, not so as to see him for the sake of seeing what is there. (Dewey, 1934, p. 54)

This manner of perception is incomplete, as it hardly affords any understanding of the technology or its relationship with the user, instead it heralds a certain automatic, habitual response, facilitated by prior algebraization. One of the strengths of Laurel's metaphor is exactly that it is recognizable, that it makes use of algebrization (Shklovsky, 1917/2013) and benevolent deception to make sense of something that is new or different, but this does not produce a relationship that is slow or critical. The metaphor applies something that is known, something that has already been perceived and understood, and that way that we can instead recognise, so rather than stimulating perception the metaphor stimulates recognition.

The metaphor is effective and it's comfortable. Reiterating Ryan (2002), the metaphor provides an emotional safety, because computers are strange and new, and the desktop metaphor that she references allows one to see the computer as a desktop. A desktop is familiar, one can sit at it, touch it, hear it. There is a tangible aspect to every operation that we do at a desk. The computer doesn't function that way – it manipulates bits and bytes rather than materials and objects – but we can make it appear as if it does, providing that familiar sensation.

Laurel presents her metaphor as something that allows us to operate a machine effectively. The desktop and dramatic metaphors essentially make computers more usable and comfortable.

To summarise, Laurel's metaphor is a way to rely on recognition rather than relying on perception; to invoke symbols and behaviour that we have already developed some form of habitual pattern with. That's where I would like to use Artaud's theatre differently, still as a metaphor, but a metaphor that harnesses these habitualized patterns and symbols for critical reflection, rather than comfort.

Liveness Under the Proscenium Arch

Or the lack thereof… Maybe relate to Blau's concept of liveness – i.e. Laurel's conception of the computer as dramatic theatre does *not* produce a remotely live experience.

The proscenium stage is a window – Laurel's conception is one of transparent immediacy

Ultimately, Laurel's metaphor serves usability.

It's not just that the technical underpinnings of theatre performance are unimportant to audience members; when a pay is "working," audience members are simply not aware of the technical aspects of all. For the audience member who is engaged by and involved in the play, the action on the stage is *all there is*. In this sense, plays are like movies: When you are engrossed in one, you forget about the projector, and you may even loose awareness of your own body. For the actor on stage the experience is similar in that everything extraneous to the ongoing action is tuned out, with the exception of the audience's audible and visible responses, which are often used by the actors to tweak their performance in real time (this, by the way, reminds us that theatrical audience's are not strictly "passive" and may be said to influence the action). For actor and audience alike, the ultimate "reality" is what is happening on in the imaginary world on the stage – the representation. (Laurel, 1993, p. 15-16)

Above Laurel the term *extraneous* the describe the very medium of theatre. In reality, Laurel is referring to the intrinsic, technical, aspects of theatre as if they are not important – the *representation* (i.e. the illusion) is all that matters. I disagree. As Bolter & Gromala state, if we cannot appreciate the ways theatre as a medium shapes the illusion on the stage as much as the illusion itself, then we are missing out on a major part of what theatre has to offer. These "extraneous" elements are only so if one believes in the myth of transparency. And, indeed, some schools of theatre *do not* believe in the myth of transparency, like the Theatre of Cruelty, post-dramatic or devised theater.

Also, what does "strictly passive" mean in this context? It is implied that the audience (may) forget about their own existence, and so the subtle feedback which Laurel mentions must in some cases come from unconscious, habitual response, exactly the kind of algebraic behaviour that Shklovsky and Dewey instruct aversion to.

> The imprecision of dramatic representation is the price people pay – often quite enthusiastically – in order to gain a kind of lifelikeness, including the possibility of surprise and delight. When "imprecision" works, it delivers a degree of success that is, in balance against the effort required to achieve it, an order of magnitude more rewarding that the precision of programming, at least for the nonprogrammer. When it doesn't work (as in the case of a parser error), how it is experienced depends heavily upon how the system handles the failure. "**I DON'T UNDERSTAND THAT WORD**" disrupts and frustrates; an in-context response based on the most probable interpretation imitates a normal conversation failure and opens the way to methods of repair that are quite natural to use. (Laurel, 1993, p. 24-25)

Here (above) Laurel implies that the "imprecision" of the dramatic metaphor affords greater usability for the less technical individual. For Laurel, an interface should not display code or computer language – which would require specific, technical knowledge – but rather represent this underlying programming in an imprecise, but understandable and useable way. This, again, means that the natural details and particularities of the medium (in this case programming) are disregarded, even undesirable.

Theatrical imprecision is essentially deliberate (and for Laurel desirable) obscuration of the inner workings of a computer.

> Those who expect from the term *narrative interface* a spellbinding plot with lively characters and surprising twists will be deeply disappointed by these rather trivial scripts and superficial analogies. But it is precisely the banality of the narrative scenario that makes it efficient. In the design of software, narrative is not an end in itself but a means

toward a goal, and this goal is to facilitate the operation of the program. Interface metaphors, not unlike poetic ones, fulfill their rhetorical and pedagogical functions by relating a strange new world to a familiar one. (Ryan, 2002, p. 587)

If we've long been aware of the stale predictability of Broadway's assembly line, and of actors repeating themselves, that was because, as in digital culture, it was possible to process behavior and homogenize it as code. This is all the more so today in the precession of simulacra, where it's possible to think of liveness as playing roles on screen, precoded parts written for us in advance, so that we're signs of what we appear to be, not even representations but their merest facsimile. And if this is so, then the actor who appears on stage is the redundancy of a redundancy, performing an otherness that only pretends to be, so well known has it been that it can only be rehearsed, the image of an image of something that, coded to begin with, has otherwise never been. (Blau, 2011, p. 254)

Laurel's representation really is nothing new. Above Blau essentially reiterates the concept of the dramatic representation, as something that too exists in traditional proscenium theatre as well as newer media like film and television. The "representation" is a cultural phenomenon, which has existed for centuries. "Characters" on stage or screen merely acting as a stimulant to construct the virtual environment for the action to take place in.

If through Laurel's dramatic metaphor one becomes unaware of the medium of the computer even in an interaction therewith, if one is immersed into a representation of some abstract, dramatic *action*, rather than perceiving the physical and temporal presence of the technology, then such a situation has little to offer in terms of exploring one's relationship with said technology, and in turn what the metaphor can offer in the context of critical design is limited.

On the Concept of Cruelty

The name of Artaud's theatre, the Theatre of *Cruelty*, comes from the idea that going through life is in a sense struggle and suffering. Life is cruelty, and Artaud sees the theatre as a reflection of that cruel life. However, it is important to remember that Artaud names his theatre after a particular interpretation of the term *cruelty*.

This cruelty is a matter of neither sadism nor bloodshed, at least not in any exclusive way. [...] The word "cruelty" must be taken in a broad sense, and not in the rapacious physical sense that is customarily given. (Artaud, 1938/1958, p. 101)

Artaud's theatre may be described as cruel because it does not allow its audience to rely on their algebrized symbols, it demands of them some degree of participation and reflection. They cannot remain separated from the action, they cannot dodge the pain and the struggle from undergoing the impressions of the theatre, they have to face the cruelties of their shared virtual reality. The conventional safety afforded by emotional and physical distance from the play is not found in Artaud's theatre; the spectacle is *real*, the audience physically partake in the spectacle as themselves. In the Theatre of Cruelty there are no voyeurs peeking disinterested at animated wax figures, acting out events that never transpired in a space that has no meaning. There is no representation for the action to take place in, the action is presented as is; it is a *presentation* if you will.

There is no recycling, no protective proscenium plane, the reality of Artaud's theatre is present and bare.
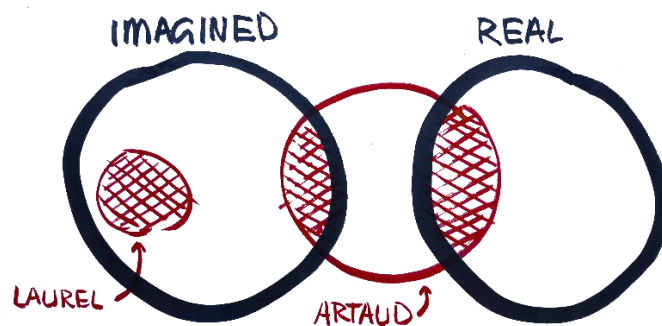
In Artaud's letters on cruelty (1938/1958, p. 101-104) he argues for his title as signifying his theatre as a reflection of life's cruelty. Cruelty is an inherent quality of life, a consequence of existing. In a similar sense to how Dewey (1934) describes the undergoing of impressions – engaging consciously in perception – as painful and sufferable, so does Artaud imply life as a painful undergoing of experiences and writing them into our memories. Even the creator themselves suffer through their escape from the nothingness;

> Effort is a cruelty, existence through effort is a cruelty. Rising from his repose and extending himself into being, Brahma suffers, with a suffering that yields joyous harmonics perhaps, but which at the ultimate extremity of the curve can only be expressed by a terrible crushing and grinding. (Artaud, 1938/1958, p. 103)

"Cruelty" in the context of the Theatre of Cruelty, and so also in this thesis, is to be understood as the activity of consciously taking part in life; to suffer through existence. Artaud implies a sufferable repetitiveness and determinism in life, but also a beauty in the experiences one can have when delighting in those cruelties. And as Shklovsky (1917/2013) states, with no resistance, no difficulty of perception, life would be rendered meaningless, a homogenous, grey mass of insignificant events and images.

Despite that fact that "existence through effort is a cruelty", existence without effort (and thus without cruelty) would be meaningless.

Thus, Artaud's name to his theatre, the Theatre of Cruelty, roughly translates to the *Theatre of Life*. As contemporary playwright Romeo Castellucci states on his version of the Theatre of Cruelty: "Theatre is a black mirror of our existence" (as cited in O'Mahony, 2011). If one visualizes what is real and what is imagined as two separate spaces, then the Theatre of Cruelty spans the gap between the two, extending real phenomena – sensorial impression, personal frustrations and affections, social issues, catastrophes and celebrations, anything that one may apprehend with senses and mind – into the realm of the surreal and imagined;

Artaud & Laurel's performance spaces visualized. Artaud's (centre) encompasing both real and imagined space, while Laurel's (left) is fully imagined/virtual.

Artaud truly exemplifies the metaphorical mirror (Bolter & Gromala, 2003), as the very medium of theatre serves to help us better perceive and understand ourselves and our physical and cultural contexts. Like a warped mirror accentuating certain of one's aspects – attractive, repulsive and neutral alike – Artaud's theatre lends a critical eye to life as lived, to one self and to surrounding phenomena.

Unlike classical theatre's rejection of reality as the space for interaction in its *representations*, the cruel theatre's dreamlike virtual reality presents a hyperreal reality that is, perhaps, perceived as more immediate and more real than life itself.

Computers as Spectacle from a Dramatic to a Theatrical Metaphor

As it is with computers, *theatre* is not a single mediated form; the schools of theatre, and performance in general, are varied and numerous. However, given Laurel's narrow perspective on theatre as specifically *dramatic proscenium theatre*, it makes sense that her metaphor will be equally limited.

> Brenda Laurel understood the performative and representational power of the computer when she wrote *Computers as Theatre* (1991). She argued that we should design computer applications not only to be used, but to be performed and experienced. But Laurel put too much emphasis on one rather specialized media form, the theatre. In fact, the computer is not only a new stage for theatrical performance; it can also be a new cinema, a new television, and a new kind of book. The computer does not fuse all its representations into a single form, but presents them in great variety. If there was ever a single technology that did not have a single essence, it is the digital computer. (Bolter & Gromala, 2003, p. 15)

Laurel (1993) emphasizes usability and recognizable representations in her metaphor, and part of the reasoning behind this likely stem from the notion of theatre that she bases her metaphor on. Her *representation* merges the space of the performance with that of the audience, but remains in a metaphysical, virtual state.

> What is represented in the interface is not only the task's environment and tools but also the process of interaction – the contributions made by both parties and evidence of the task's evolution. I believe that Norman's analysis supports the view that interface design should concern itself with representing *whole actions with multiple agents*. This is, by the way, precisely the definition of theatre. (Laurel, 1993, p. 7)

She defines theatre as representational. While there are environments, interactions, tools, etc., these exist only within the confines of the representational bubble.

Rather than *plays* the theatre of cruelty presents *spectacles*.

In Laurel's metaphor, the representation is the ultimate space in the interaction. In Artaud's theatre, there is no single elements which is most important, the spectacle is a collage of all of the elements that is theatre. A cruel spectacle may culminate in a unified experience, but the technical aspects – the characters, props, effects – all exists separate from one another, though they intersect and interplay, and each impart their own dialect of the theatre's language on the situation.

Three models of the proscenium stage (left) Laurel's representation supported by backstage elements (centre) and Artaud's non-stage, vitual reality environment (right)

The Languages of the Theatre

Artaud's theatre being grounded in the idea that the manner and medium of representation is just as important as the "play" itself, parallels the idea from Hallnäs & Redström's *Slow Technology* that the expressions of technology itself can be, and should be, appreciated, and that their presence is important as much as their function. And while I may write the *medium* of theatre, I do so in the same sense as one might write the *medium* of the computer, because there are several individual technologies and techniques, several different mediums in their own right, which make up theatre as a whole; the *medium of theatre* is the amalgamation of several distinct media forms, performing cooperatively a "single" medium.

The remediation of old media into a new, cohesive form can indeed be described as a single *medium*, with distinct qualities, traditions and methods born from its composite nature. Looking at the media collage of theatre, the individual media forms reveal themselves not as fragmented pieces, but as *aspects* of the whole – lights, surfaces, cloths, music, sound effects, human gestures and speech, architecture etc. – and while they contribute to a unified experience, they do so each in their own, specialized way, speaking their common language of the theatre, each in their own peculiar dialect.

When Artaud calls for a new language of theatre, it is this language, based on the inherent qualities of the theatre's aspects, which he seeks to explore. New sounds and lights, new technologies to produce them in more extreme and precise ways, and new ways to implement them into the spectacle.

In other words, the different elements of the theatre are to be *slow* – to each have their own presence. While slow technology is not necessarily intended for performance, the idea that artifacts are designed "for "presence" instead of "use"" (Hallnäs & Redström, 2001, p. 209) is exactly the point of Artaud's call for a new theatre language; e.g. "sounds make their entrance like characters [...] Musical instruments: they will be treated as objects and as part of the set." (Artaud, 1938/1958, p. 94). The tools and techniques of the theatre are not only relevant in their ability to contribute to the overall story or theme, but also, and perhaps more importantly so, in their ability to express themselves. E.g. lights do not serve as mere highlights on important characters or events, as they often do on the classic proscenium stage, but to *be* the character, and to "speak", in their own language, alongside, to or in dialogue with, other "characters". The qualities of the light – the intensity, colour, direction, movement, etc. – serve also to express the lighting equipment itself. And of course that physical entity – be it a flame, a lamp or other – also has expressions of its own; movement, material, the noises and the heat it produces, are in a way also expressions of the light.

> Thus we shall renounce the theatrical superstition of the text and the dictatorship of the writer. And thus we rejoin the ancient popular drama, sensed and experienced directly by the mind without deformations of language and the barrier of speech. (Artaud, 1938/1958, p. 124)

When Artaud (1938/1958) dismisses the traditional, written "play", it is exactly because of its isolated nature; a play is imaginary. Plays may reference and represent reality on some way, but the liveness of the representation itself is fleeting. The classical theatre is representational of some entity which exist outside the constraints of space and time, the *play*, i.e. objects, sets, characters, actions and relationships which are not real. The detailed, written script helps maintain the segregating proscenium plane. A traditional play is at best a mere reference to reality. The Theatre of Cruelty is not representational in this way, it presents an environment which simply *is*, or rather, an environment which *becomes*; the language spoken by the theatrical elements being shared with the audience in a big, cooperatively chanted poem. When describing his first spectacle, *The Conquest of Mexico*, Artaud (1938/1958, p. 126- 132) splits it in acts and describes events, but there is no definite dialogue, no exact ques, and rather than using technical instructions, he

describes gestures and sensations. The Theatre of Cruelty is not of logic and abstraction, but of the senses and emotions; the impressions, the spectacle, take precedence over any semblance of "play".

Artaud calls this a "new" language of theatre, but in truth it is not so much a new language, as it is the theatre's *natural* language, similar to how Slow Technology does not introduce any new ways for technologies to express themselves, but rather *amplifies* and *extends* their natural expressions in space and time (Hallnäs & Redström, 2001). The language *is the medium*.

The immense potential of electronic systems requires a comprehensive, composite language akin to that of the theatre; the *essential theatre*. Exploring the full capacity of these phenomena cannot be done with abstracted languages relying on logic and visualization alone, just like the theatre is limited if it glorifies the written script as some divine predeterminant; Critical Design requires a language which addresses the user directly through their sense, by means of the expressions inherent in its technological media.

As Laurel puts it "The power of the computer is locked behind a door with no knob" (1993, p. xviii), because of the limitations of tool-metaphors, however her theatre metaphor, with interactivity as dramatic action, is likely still too limited to unlock the metaphorical door. The metaphorical conception of the computer (and maybe electronics in general) as theatrical environments, as Theatre of Cruelty, with a diverse, medium-centric language, may aid in the unlatching the barrier behind which the nature of the computer lies.

Becoming with Technology

An underlying principle of Artaud's theatrical language, is the configuration of his theatre's "stage" and the dialogicality it affords with the audience.

In the Theatre of Cruelty there is no *stage*, instead, the theatre is configured as a *space* for the action. Artaud constructs his theatre as an environment, and immersive, immediate assemblage of objects and characters which act out a spectacle *around* its audience. Spectators are placed in the centre of the action, and props characters act and interact in all directions around them.

The spatial configuration of proscenium theatre (left) and Theatre of Cruelty (right)

Proscenium theatre presents a *space*, neutral and flexible, fit for many different plays and crowds, but ultimately less significant for its own qualities. The proscenium stage is shaped to stimulate the construction of some virtual, imagined space, either framed by the stage itself or by the mind of its audience. The theatre of cruelty presents a *place*, a particular space with qualities that impart upon the spectacle; the spectacle is inherently tied to the space, and cannot be moved. The configuration of the space for the spectacle does not serve the construction of any virtual space, but to engulf the audience in a real, physical setting.

> We abolish the stage and the auditorium, and replace them by a single site, without partition or barrier of any kind, which will become the theatre of the action. A direct communication will be re-established between the spectator and the spectacle, between the actor and the spectator, from the fact that the spectator, placed in the middle of the

action, is engulfed and physically affected by it. This envelopment results, in part, from the very configuration of the room itself. (Artaud, 1938/1958, p. 96)

Artaud suggests retrofitting "some hangar or barn" (1938/1958, p. 96), implying that the theatre is not just culturally situated, but physically too. His theatre has a sense of shared ownership between the performers, technicians and the audience, supplied in part by the context and in part by the spectacles' loose "script" and semi-improvisatory nature.

With the audience placed in the centre of the spectacle, the responsibility of directing attention to the different elements in part falls upon the audience themselves. The position of one's body in space, one's movements over time in response to the environment's development; spectators have to engage with their surroundings actively. The experience of Artaud's theatre is open and contextual, recalling McCarthy & Wrights principles of "situated creativity and dialogicality" (McCarthy & Wright, 2004, p. 77-78).

The spectacle is an open dialogue between the various elements of the space, but also between the spectacle's characters, human or otherwise, and the audience members. The performance is shared, as spectators perform for themselves, and for each other, their own observational roles in the situation. Especially if the spectacle is successful in procuring strange and the defamiliarizing imagery, as the repressed, algebrized symbols of the audience flow into their consciousness, confronted and confounded by their own forgotten thoughts, and through their participation in the spectacle, impart their own, subtle perplexity and exhilaration onto the whole.

While there are not always a communal audience for a digital design phenomenon, i.e. I might check my phone by my lonesome, there may still be a dialogue between the characters of the medium and the user, as one oscillates between imparting changes through the interface, and suffering through the impressions imparted by the phenomenon, similarly to the oscillatory balance of media reflectivity and transparency. (Bolter & Gromala, 2003)

The dialogicality is not inherently physical, though in the theatre it would naturally become so. As Blau (2011) states the concept of liveness is not necessarily a matter of physical participation, but of perception of the immediately available impressions.

> And any way you look at it, the body on stage is suffused with the vicissitudes of appearance, which complicate the question of liveness, all the more because you look, off stage, on stage, with more or less reciprocity during the course of performance—the irony being here that sometimes less is more. Which is to say that the quality of liveness, the felt sensation of it, may not necessarily diminish as it moves from the interactive or participatory to a more contemplative mode. (Blau, 2011, p. 254-255)

Artaud's theatre, much like Slow Technology, strives towards theatricality, liveness, and a sense of becoming with their audience – or rather *peers*. They both have deep dependencies on context, culture and self.

In Laurel's metaphor, the screen is the stage (Ryan, 2002). In a cruel metaphor the screen would be but one character of the spectacle, a single, but complex, element of the environment, expressing itself alongside other components, such as various input devices, speakers, surfaces, etc. Of course the environment may be incredibly difficult to know, as with the situation in which I check my phone; there is no way for a designer or an artist to fully know what that situation will look like or how the environment will be configured. I might engage with technology at any place; in my home, at the park, on the bus, in space, there really is no limit when it comes to modern technology. However, common to all of these environments is that *I* will always be present, and so will the *technological phenomenon* in question. I possess all of my senses, all of my

gestures, my movements, my breathing and body heat, and the techno phenomenon will always provide the scene with its own expressions, materials, gestures and whatnot.

There is certainly a difficulty in addressing the whole environment when developing for a personal computer, as the potential variety of environmental factors, including components of the computer itself, are impossible to know. Designing specifically for unknown, and unknowable, environments is unfeasible, but the numerous unique contexts will be as valuable in the interaction as any controlled environment, and designers will have to accept that they may not have control over those factors, for better or worse.

For Artaud's Theatre of Cruelty, the director has no way of knowing how the audience will react, and how they will converse with the immersive environment that is curated for them. However, this is not necessarily a flaw or a limitation, but rather an opportunity to embrace the spectacle's dynamic and dialogical possibilities. Similarly, the unknowable nature of a lot of modern techno situations is not to be seen as a problem to overcome, but rather as an opportunity to learn, engage and progress.

For Laurel's representation, the physical medium is arguable not important, as it functions merely as a tool for constructing the virtual representation, for invoking the required algebraic symbols. In Artaud's theatre, the physical manifestations are at least equal to metaphysical constructs and thoughts, serving as a tangible, sensorial lens onto the unseen, *and* as characters, knowable and important entities in their own right.

In a sense, the principles of Artaud's theatre serve to make the theatre experience more aligned with the fundamental aspects of aesthetic experience (Dewey, 1934; McCarthy & Wright, 2004). What I mean by that is that the situated creativity and dialogicality which McCarthy & Wright (2004) assign as fundamental aspects of aesthetic experience of technology, are also fundamental aspects of Artaud's principles in his manifesto; the spectacle of the theatre is not one which *is*, but one which *becomes* through the interaction between the context, the crew, and the audience.

The notion of *becoming* is similar to the notion of *cruelty* explored earlier. Becoming is a basic principle of aesthetic experience, in that one approaches phenomena openly, and take part, actively, in and how one undergoes impressions and think about them. it is a matter of *becoming* rather than simply *being*, because experiences are constrained in time and space; there is a beginning and an end, and in between those two points time passes and events transpire, there is a space for interaction, an otherness with which one coexists within the space, and the approach to this context is open, i.e. one is ready to undergo impressions, and deliver those of one's self in return.

> As such the weight of becoming is not a burden, it is not a weight that holds us back; rather, it is the weight of responsive relating that underpins the dialogical imagination. And this is where we locate the playfulness of experience. It is in the simultaneously aesthetic and ethical consummation of an other as a center of value separate from ourselves that we play with our own selves, making dialogical moments complex, deep, and open. (McCarthy & Wright, 2004, p. 188)

I argue that this aspect of becoming is central to Artaud's theatre, because of the way he configures the space, and because up the role that he gives his audience.
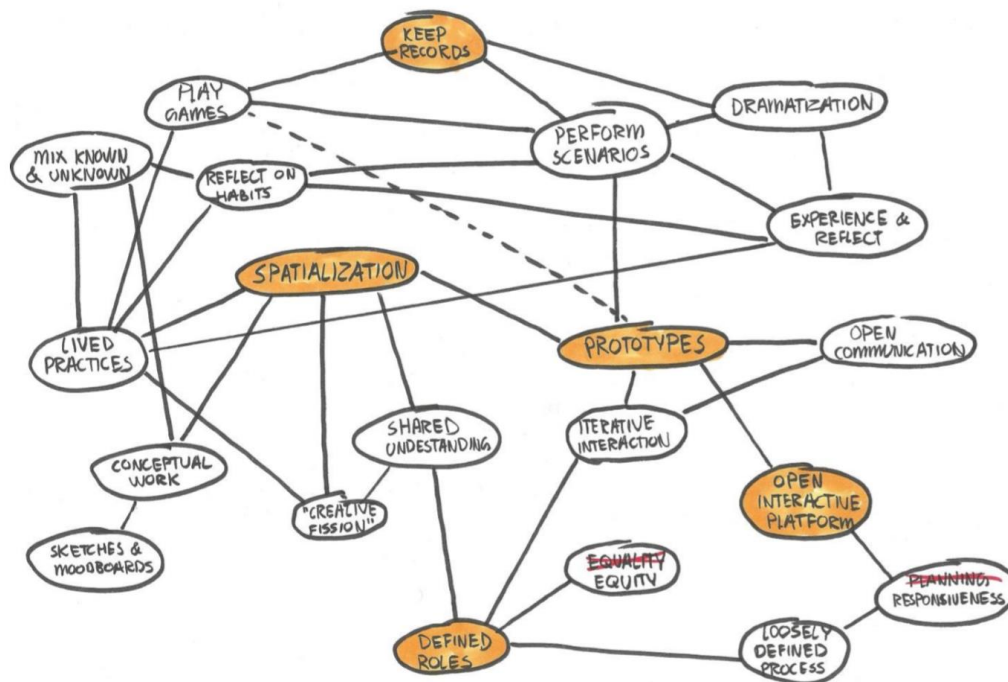
> Struggle and conflict may be themselves enjoyed, although they are painful, when they are experienced as means of developing an experience; members in that they carry it forward, not just because they are there. There is [...] an element of undergoing, of suffering in its large sense, in every experience. Otherwise there would be no taking in of what preceded. For "taking in" in any vital experience is something more than placing something on the top of consciousness over what was previously known. It involves reconstruction which may be painful. (Dewey, 1934, p. 42)

Closing Thoughts: Designing, Devising, Deliberating

For this final chapter I wanted to present a relatively concrete and workable metaphor for computer, based on autos theatre of cruelty, but I never made it that far. I do still think that my discussion is useful, especially in terms of how the theatre of cruelty and theatre in general is useful as an auxiliary way to describe and think about computers and other digital technology.

In the end I intended to propose a way to organize the critical design process in a way similar to devised theatre, using a model derived from activity system maps. This framework would help designers organize different spaces, artifacts and activities – games, generative toolboxes, case/target environments, prototypes, etc.

I developed the model below for my 8th semester project, and I intend to procure something similar. Though the most useful aspect of such model is the way other designers would be able to organize their own set of activities to fit their current projects *based on* the model and theatre.

Key References

Artaud, A. (1938). *The Theater and Its Double* (M. C. Richards, Trans.). Grove Press.

Bardzell, J., & Bardzell, S. (2013). What is 'critical' about critical design? *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, 3297–3306. https://doi.org/10.1145/2470654.2466451

Bardzell, S., Bardzell, J., Forlizzi, J., Zimmerman, J., & Antanitis, J. (2012). Critical design and critical theory: The challenge of designing for provocation. *Proceedings of the Designing Interactive Systems Conference*, 288–297. https://doi.org/10.1145/2317956.2318001

Bolter, J. D., & Gromala, D. (2003). *Windows and Mirrors: Interaction Design, Digital Art, and The Myth of Transparency*. MIT Press.

Dunne, A. (2006). *Hertzian Tales: Electronic Products, Aesthetic Experience, and Critical Design*. MIT Press. http://ebookcentral.proquest.com/lib/aalborguniv-ebooks/detail.action?docID=3338550

Hallnäs, L., & Redström, J. (2001). Slow Technology – Designing for Reflection. Personal and Ubiquitous Computing, 5(3), 201–212. https://doi.org/10.1007/PL00000019

McCarthy, J., & Wright, P. (2004). Technology as experience. MIT Press.

Laurel, B. (1993). *Computers as theatre*. Addison-Wesley.

Ryan, M.-L. (2002). Beyond Myth and Metaphor: Narrative in Digital Media. Poetics Today, 23(4), 581–609. https://doi.org/10.1215/03335372-23-4-581

Shklovsky, V. (1917). Art as Technique. In R. J. Lane (Ed.), Global literary theory: An anthology (pp. 7–20). Routledge.

Full List of Literature

Artaud, A. (1938/1958). *The Theater and Its Double* (M. C. Richards, Trans.). Grove Press.

Auslander, P. (2008). Live and technologically mediated performance. In T. C. Davis (Ed.), *The Cambridge Companion to Performance Studies* (pp. 107–119). Cambridge University Press. https://doi.org/10.1017/CCOL9780521874014.008

Bardzell, J., & Bardzell, S. (2013). What is 'critical' about critical design? *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, 3297–3306. https://doi.org/10.1145/2470654.2466451

Bardzell, S., Bardzell, J., Forlizzi, J., Zimmerman, J., & Antanitis, J. (2012). Critical design and critical theory: The challenge of designing for provocation. *Proceedings of the Designing Interactive Systems Conference*, 288–297. https://doi.org/10.1145/2317956.2318001

Biggs, M., & Karlsson, H. (Eds.). (2010). *The Routledge companion to research in the arts* (1st ed). Routledge.

Blau, H. (2011). Virtually Yours: Prescense, Liveness, Lessness. In *Reality Principles: From the Absurd to the Virtual* (pp. 246–263). University of Michigan Press. http://ebookcentral.proquest.com/lib/aalborguniv-ebooks/detail.action?docID=3414996

Bolter, J. D., & Gromala, D. (2003). *Windows and Mirrors: Interaction Design, Digital Art, and The Myth of Transparency*. MIT Press.

Bolter, J. D., & Grusin, R. A. (1999). *Remediation: Understanding new media*. MIT Press.

Bowers, J., Taylor, R., Hook, J., Freeman, D., Bramley, C., & Newell, C. (2014). HCI: Human-computer improvisation. *Proceedings of the 2014 Companion Publication on Designing Interactive Systems*, 203–206. https://doi.org/10.1145/2598784.2598799

Buchanan, R. (2001). Design Research and the New Learning. *Design Issues*, *17*(4), 3–23. https://doi.org/10.1162/07479360152681056

Buchenau, M., & Suri, J. F. (2000). Experience Prototyping. *Proceedings of the 3rd Conference on Designing Interactive Systems: Processes, Practices, Methods, and Techniques*, 424–433. https://doi.org/10.1145/347642.347802

Complicité. (n.d.). *Teachers Notes—Devising*. Complicite.org. http://www.complicite.org/media/1439372000Complicite_Teachers_pack.pdf

Dewey, J. (1934). *Art as experience*. Perigee.

Dorst, K. (2011). The core of 'design thinking' and its application. *Design Studies*, *32*(6), 521–532. https://doi.org/10.1016/j.destud.2011.07.006

Dunne, A. (2006). *Hertzian Tales: Electronic Products, Aesthetic Experience, and Critical Design*. MIT Press. http://ebookcentral.proquest.com/lib/aalborguniv-ebooks/detail.action?docID=3338550

Forlizzi, J., & Battarbee, K. (2004). Understanding experience in interactive systems. *Proceedings of the 2004 Conference on Designing Interactive Systems Processes, Practices, Methods, and Techniques - DIS '04*, 261–268. https://doi.org/10.1145/1013115.1013152

Forlizzi, J., & Ford, S. (2000). The Building Blocks of Experience: An Early Framework for Interaction Designers. *Proceedings of the 3rd Conference on Designing Interactive Systems: Processes, Practices, Methods, and Techniques*, 419–423. https://doi.org/10.1145/347642.347800

Freud, S. (1919). The 'Uncanny' (A. Strachey, Trans.). *Imago*, *V*.

Fried, M. (1998). Art and Objecthood. In *Art and objecthood: Essays and reviews* (pp. 148–173). University of Chicago Press.

Galle, P. (2010). Elementer af en fælles designfaglig videnskabsteori. *Form Akademisk - forskningstidsskrift for design og designdidaktikk*, *3*(2), 51–76. https://doi.org/10.7577/formakademisk.111

Goodman, N. (1978). *Ways of worldmaking*. Hackett Pub. Co.

Hallnäs, L. (2015). On the Philosophy of Slow Technology. *Acta Universitatis Sapientiae, Social Analysis*, *5*(1), 29–39.

Hallnäs, L., & Redström, J. (2001). Slow Technology – Designing for Reflection. *Personal and Ubiquitous Computing*, *5*(3), 201–212. https://doi.org/10.1007/PL00000019

Jentsch, E. (1997). On the psychology of the uncanny (1906) (R. Sellars, Trans.). *Angelaki*, *2*(1), 7–16. https://doi.org/10.1080/09697259708571910

Knowles, J., & Cole, A. (2008). *Handbook of the Arts in Qualitative Research: Perspectives, Methodologies, Examples, and Issues*. SAGE Publications, Inc. https://doi.org/10.4135/9781452226545
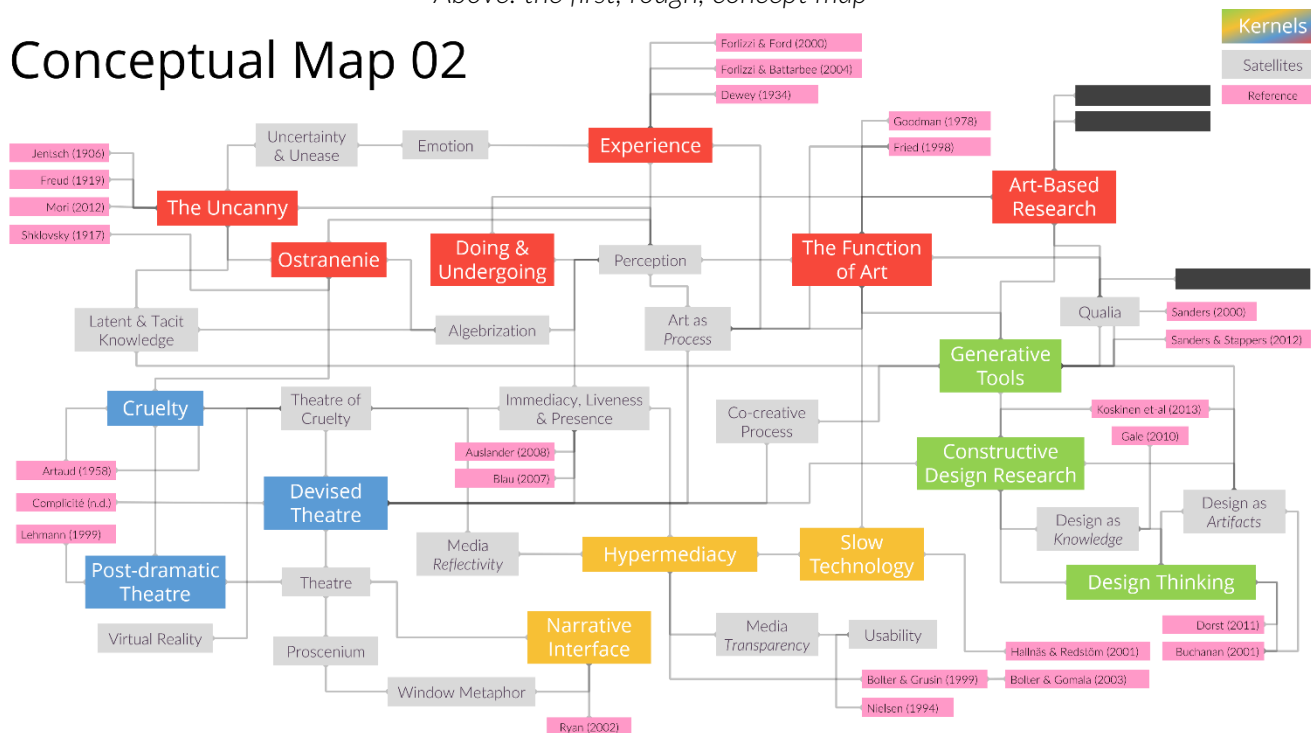
Koskinen, I., Zimmerman, J., Binder, T., Redström, J., & Wensveen, S. (2013). *Design Research Through Practice: From the Lab, Field, and Showroom*. Morgan Kaufmann. http://ieeexplore.ieee.org/document/6583271/

Laurel, B. (1993). *Computers as theatre*. Addison-Wesley.

Lehmann, H.-T. (1999). *Postdramatic theatre* (K. Jürs-Munby, Trans.). Routledge.

McCarthy, J., & Wright, P. (2004). *Technology as experience*. MIT Press.

Mori, M. (2012). The Uncanny Valley (K. MacDorman & N. Kageki, Trans.). *IEEE Robotics & Automation Magazine*, *19*(2). https://doi.org/10.1109/MRA.2012.2192811

Nielsen, J. (1994). What is Usability? In *Usability Engineering* (pp. 23–48). Elsevier Science & Technology.

Osterwalder, A. (2004). *The Business Model Ontology: A Proposition in a Design Science Approach* [PhD]. University of Lausanne.

Pine, I., B. Joseph, & Korn, K. C. (2011). *Infinite possibility: Creating customer value on the digital frontier*. Berrett-Koehler Publishers.

Ryan, M.-L. (2002). Beyond Myth and Metaphor: Narrative in Digital Media. *Poetics Today*, *23*(4), 581–609. https://doi.org/10.1215/03335372-23-4-581

Sanders, Elizabeth. B.-N. (2000). Generative Tools for Co-designing. In S. A. R. Scrivener, L. J. Ball, & A. Woodcock (Eds.), *Collaborative Design* (pp. 3–12). Springer London. https://doi.org/10.1007/978-1-4471-0779-8_1

Sanders, Elizabeth. B.-N., & Stappers, P. J. (2012). How it works: Generative tools and techniques. In *Convivial design toolbox: Generative research for the front end of design* (pp. 65–95). BIS.

Shklovsky, V. (1917). Art as Technique. In R. J. Lane (Ed.), *Global literary theory: An anthology* (2013) (pp. 7–20). Routledge.

Wensveen, S., & Matthews, B. (2014). Prototypes and Prototyping in Design Research. In P. A. Rodgers & J. Yee, *Routledge Companion to Design Research* (pp. 262–276). Routledge.

Appendix

Here I have simply included a couple more maps from the project's initial stages.

Conceptual Map 01

Above: the first, rough, concept map

Conceptual Map 02

Above: the second map, with colers indication relations.

Philosophical motivations
Abstract & elusive

Media *Reflectivity*

Media *Transparency*

Usability

Design as *Knowledge*

Design as *Artifacts*

Slow Technology

Design Thinking

The Function of Art

Constructive Design Research

Objecthood & Theatricality

Latent & Tacit Knowledge

Co-creative Process

Algebrization

Critical Design

The Uncanny & Strange

Phenomenology & Perception

Problem goes here

Generative Tools

Experience as Inquiry

(Media Transparency)

Theatre of Cruelty

Devised Theatre

Art-Based Research

Window Metaphor

Cruelty

Narrative Interface

Minimalism & *Lessness*

Liveness & Presence

Aesthetic Experience

?

Proscenium Theatre

Post-dramatic Theatre

Pragmatism

Emotion

(Theatre of Cruelty)

Qualities of artifacts/products
More or less tangible ideals

Manifesto (Product)

Methodology (Process)

Framework(s) for making
Applicable processes & practices

Above, the first proper "lotus" map

On the last page is a larger version of the final map from September 2023.

Manifesto (Product)

Metaphor & Methodology

Phenomenology & Perception

Aesthetic Experience

Theatre of Cruelty — Core: Artaud

Critical Design — Core: Dunne

Windows & Mirrors — Core: Laurel

Problem goes here

Slow Technology

Design Thinking

Mirror Metaphor

Window/Proscenium Metaphor

The Uncanny & Strange

Cruelty

Post-dramatic & Devised Theatre

Pragmatist Experience

Algebrization & Ostranenie

Art as Function

Envelopment

Art or Design?

Liveness & Presence

Transparency & Reflectivity

Research

Activity System Maps

Hyper- & Virtual Reality

Slow Technology

Transparency & Reflectivity

"Translective" Oscillation

Metaphoric thinking & iconography

Usability

Computers as Theatre

Ambient Technology

Narrative Interfaces

Dramatic Action