



DEFAMILIARISATION TOWARDS DIVERGENCY

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Digital interactive systems have systematically been designed in order to cater to the user's desires, through user-friendly and user-centred design methodologies, privileging pleasurable and effective experiences. While this may be necessary and a worthy pursuit in many cases, it led to the rise of convergent systems focusing mainly on efficiency, productivity, and optimisation not only in those areas of our lives that require this mindset but to all areas regardless, relegating the interactor to the role a client experiencing a product, while limiting the creative and exploratory potential of the digital medium. In order to introduce divergency, we propose the concept of defamiliarisation as a method to reduce the predictability of interactions with digital technology, and suggest possible methods to accomplish it in interactive systems.

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1 INTRODUCTION

With the ubiquitous of computing and the pervasiveness of digital media, we are now faced with pervading interaction with digital information. These are capable of being part of virtually all of our daily activities: of our work, naturally, but also of our leisure, our meals, our commute, our social interactions, exercise, rest, and so on.

As we further allow these systems¹ into every aspect of our “connected everyday” (Giaccardi 2015), the more influence the design philosophies inherent to these systems have on ourselves and our behaviours.

Regardless of what we may have learned from Marshall McLuhan, in a post-app world we often neglect that the medium that delivers the digital information we interact with has an inherent ideology, even if not consciously designed, and that that ideology has an impact on us, the interactors. Even user-centred/user-friendly design, which aims to have the design process guided by users, is implicitly stating a design philosophy that conditions the product and our usage of it, gradually adapting our own actions to better accommodate the generalised user that these objects are centred around, and attempting to be friendly to (Dunne 2005).

While designing to please the user, these methodologies, logically and unavoidably exclude all possible experiences that are unpleasant and “user unfriendly” (Dunne 2005), even if these unpleasant interactions could expand the experience. Steven Fookinga and Pieter Desmet make the case for negative emotions “as a key element of rich product experiences, instead of an unwanted side effect of product interaction” (2012), such emotions as well as those arising from frustration and aggravation from unfriendly designs could be explored in a way to produce novel and valuable experiences.

Naturally, there is a financial incentive to create interactive systems that create pleasurable experiences and respond to the interactor’s expectations. Likewise, the design of systems that aid the discovery and encountering of digital information, in their attempt at relevancy, condition the possibilities of the interaction. As the available information grows, information seeking and discovery systems, in an effort to better answer to the information needs of the user, began to adopt methods of information personalisation, catering content according to the individual needs and preferences. In what can be described as another form of user-friendliness (one that modifies not the interface delivering the information but the information itself), the system attempts to predict the user’s intention and present the result which it believes to best suited.² The intention is to create a “serendipity

1. In this article, and for the sake of brevity, by systems we are encompassing all methods of conveying digitally-based information, be it a smartphone (and smartphone application), a smartwatch, a video game or a website. Further research will be necessary to frame this discussion within specific media.

2. This can be observed in the common recommendation systems popular in e-commerce websites such as *Amazon*.

3. One good example of an attempt at a *Daily Us* is Catherine D'Ignazio's *Terra Incognita: 1000 Cities of the World*, a "serendipitous global news recommendation system designed to help people out of their personalised media filter bubbles". While D'Ignazio's study didn't show a significant shift in user behaviour in aggregate, 87.5% of the users reported to have learned about a new city and 63% of users consider that *Terra Incognita* "prompted them to reflect on the geography of their news reading", helping to broaden users' horizons while piquing "their curiosity and helped some feel 'more connected' to unknown places" (D'Ignazio 2015).

4. Such is the case with the crowd-curated news aggregators such as *Digg*, *Reddit* and *Slashdot*. While the democratic "upvote" and "downvote" mechanics of these platforms can lead to the most interesting or commented upon content at a particular moment rise to the top, in practice, however, due to the particular demography of these platforms (mostly US males between the ages of 18 and 29) what ends getting up-voted the most is the type of content that fits to the audience interests.

machine", as Eric Schmidt once described his vision for Google Search (Siegler 2010). This, however, is, at best, pseudo-serendipity, as these systems do not cater to us, but to a machine-created caricature of ourselves, the sum of our clicks, likes and shares. While these may represent the interactor to some extent, they are not us, and they do not accommodate growth, as we are constantly 'consuming' the same ideas, letting ourselves fall into an echo-chamber, constantly feeding the machine with the reverberation of ourselves.

As we continue to create systems built on a functional mindset, which privilege optimisation and productivity, promoting pleasurable, knowable experiences built upon best practices of user-friendliness, we fail to explore the potential of these increasingly smarter devices and of the digital medium itself as a means for creative and unexpected experiences which may deliver actual serendipity.

2 CONVERGENT ME AND DIVERGENT US

In his book *Being Digital*, Nicholas Negroponte (1995) foresaw a future newspaper in which the individual reader could fine tune the relevancy of the content according to what interested her the most at a particular day, through user-configurable filters with which one could "crank personalisation up or down" (2015, 154). This "Daily Me", as Negroponte called it, would be our main source of information during work days. When, however, we felt the need for more "serendipitous" discoveries (during a relaxed weekend, Negroponte suggests), we would opt instead for the "Daily Us", which would enable us to expand our concerns beyond what is familiar and discover new, surprising information.

Twenty years later and the *Daily Me* is a reality. We can see it in *Facebook*, *Twitter*, *Google News*, *YouTube* and *Spotify*. It is ever present in the attempts to better accommodate the interactor's expectations and interests, since "a squirrel dying in front of your house may be more relevant to your interests right now than people dying in Africa", as Facebook's founder Mark Zuckerberg famously stated (Pariser 2011, 1). The quest for relevancy becomes ever more crucial as these systems' business model is largely dependent of it. Through exploring our natural homophilic proneness, these systems keep us engaged in the content which lie into our declared interests.

While there are abundant examples of *Daily Me*-like systems, the same can't be said for the *Daily Us*, beyond academic and artistic experimentations³. And while some systems have the potential to be examples of a *Daily Us* that takes advantage of the potential of the web and the digital medium, most fail to do so due to either by implementing content personalisation methods or being circumscribed to the audience of these systems.⁴

This *Daily Me/Daily Us* dichotomy can be juxtaposed with J. P. Guilford's *Convergent* and *Divergent* intellectual processes. In Guilford's model, *Convergent* thinking is productive, goal-driven and intended in discovering a single solution, while *Divergent* thinking concerns itself with creativity, with generating multiple solutions to a problem (Guilford 1967). When translating this to interactive systems, *Convergent* systems are those that attempt to provide the right information at the right time, *Divergent* systems are those that expand the interactor's world, promoting unexpectedness and surprise. *Convergent* systems are user-friendly and user-centred, *Divergent* systems challenge the interactor. What is happening is that we are seeing convergence without first diverging, decreasing chance, surprise and unexpectedness, making our interactions with digital information safe, friendly and utter predictable.

3 DIVERGENCY THROUGH DEFAMILIARISATION

Defamiliarisation is, quite literally, to make objects unfamiliar. To Viktor Shklovsky, who introduced the concept, to *defamiliarise* an object means to increase the difficulty and, therefore, length of contemplation and perception of that object "because the process of perception is an aesthetic end in itself and must be prolonged" (1917) and as a method to "counter-act the familiarisation encouraged by routine modes of perception" (Dunne 2005).

By considering defamiliarisation as a technique in interaction design, we are able to explore the creative/divergent potential that interactive systems can have in our lives, drawing attention both to the interaction and the medium.

In the following section we will explore methods for designing defamiliarisation in interactive systems, divided in defamiliarisation of information, interface and emotion and drawing from examples in the state of the art. These originate from various types of applications and were chosen due to their singular approaches which we believe can be applied in other categories of interactions and lead to new and surprising forms of engagement.

3.1 INFORMATION DEFAMILIARISATION

By information defamiliarisation we consider methods that transform or reconfigure digital information (the information objects themselves, what is commonly referred to as *content*) in order to make them strange and unfamiliar. This can take shape through manipulation and transformation of the information, its juxtaposition and through randomness.

MANIPULATION AND TRANSFORMATION

Information defamiliarisation can be achieved by changing the formal qualities of the information artefact. One example is found in photographic filters commonly used in mobile photography through applications such as *Instagram* (2010) and *Hipstamatic* (2009). In the particular case of *Hipstamatic*, the user is able to activate a random filter (representing a combination of simulated film and lens) that's automatically applied to the captured photograph. This can lead to unexpected results that introduce novelty in what has otherwise become a routine banal activity.

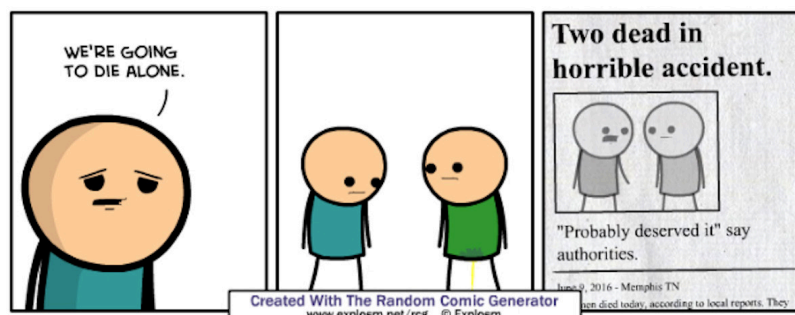
JUXTAPOSITION

Juxtaposing apparently unrelated information can lead to defamiliarisation, as it invites the interactor to draw connections between the different information being transmitted. This was observed by Tuck Wah Leong in his study of listening to music in shuffle. Leong observed that “when familiar tracks are presented to listeners unexpectedly [...] listeners perceive the evocations of these familiar and personal associations as being slightly different, unfamiliar or even strange.” (Leong 2009) This is also observable in image search engines and explored to great effect on the website *ffffound.com* where a user uploaded image is associated to three other images, often apparently unrelated.

RANDOMNESS

Randomness is often explored as both a mechanic for defamiliarisation of information as a method for other mechanics, as observed in the cases of *Hipstamatic* and shuffle listening, both relying on randomness. One example of randomness as a means for defamiliarisation can be observed in *chatroulette.com* and *randomyoutube.net*. In both these platforms, randomness is the key mechanic, and defamiliarisation occurs due to the uncertainty of what will be shown. In Explosm's *Random Comic Generator 2.0*, defamiliarisation is the consequence of the random (often non-sensical and occasionally fortuitous) combination of comic panels.

Fig. 1. Randomly created comic strip from Explosm's *Random Comic Generator 2.0*.



3.2 INTERFACE DEFAMILIARISATION

One can also design defamiliarisation through the system's interface. By challenging conventions and eschewing best practices, the designer is able to draw attention to the interaction and explore new methods of communicating information. These can be done through interface abstraction and interface complexity.

ABSTRACTION

Through interface abstraction, the designer reduces traditional interface elements to the non-figurative, rejecting the notion of interface "transparency" (Murray 2012) and embracing opacity, encouraging exploration of the interface, allowing for surprise and delight when the interactor is able to understand a specific functionality. This can be observed in *Argeiphontes Lyre*, a synthesis program developed by Akira Rabelais with a graphic user interface consisting of a translucent, cloud-like shape that displays cryptic messages in different languages. The author offers no documentation for the software, leaving the interactor to learn it through experimentation alone (Bailey 2012).

COMPLEXITY

With this defamiliarisation method, the designer purposefully and overtly hampers the interaction by introducing complexity. While similar in result, complexity differs from abstraction since the interface can be completely descriptive. One example of this kind of complexity is in the video game *Papers, Please* (2013), in which the designer purposefully created a "clunky" interface in order to better approximate the repetitiveness of the bureaucratic process (Cullen 2014).

Fig. 2. *Papers, Please* user interface, from <http://papersplea.se>



5. While emotion has long been a design goal, it is mostly focused on user's pleasure and delight or "fun" (Norman 2005, 100), which we believe to be reductive.

6. From <http://apps.piringer.net/gravity-clock.php>

3.3 EMOTION DEFAMILIARISATION

These are systems that, while offering a specific function to the user, do so while intentionally provoking a particular emotion⁵, not necessarily related to the system's proposed goal. These can be through poetic, whimsical or mischievous interfaces.

POETIC INTERFACES

In poetic interfaces, the system is imbued with expressive, figurative or metaphoric meaning beyond the implicit in the interface. This can be exemplified in Jörg Piringer's *gravity clock* (2010) in which the passage of time is symbolised "by the permanent destruction and reconstruction of the clock-face."⁶ Here, defamiliarisation occurs through the deconstruction and abandonment of the functional premise of the software, in this case, to tell time.

WHIMSICAL INTERFACES

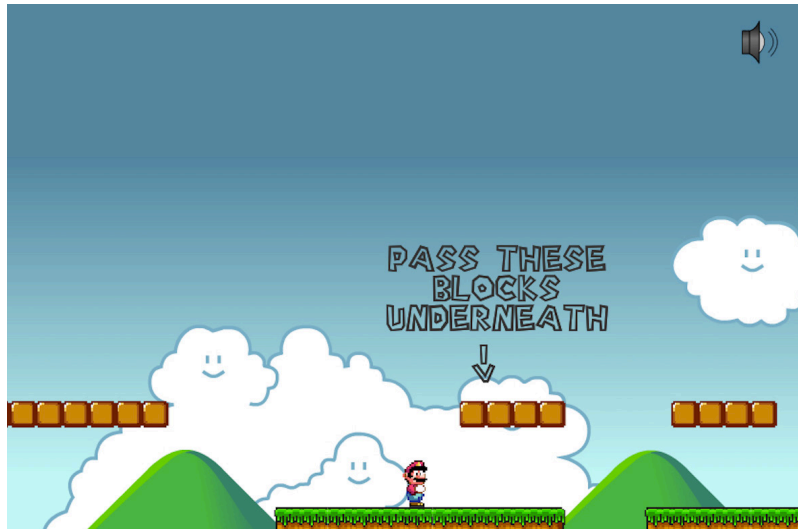
Whimsical interfaces combine functionality with a playful, joyous tone, engaging with the interactor beyond the user/tool paradigm. This can be found in Mark Sheppard's *Serendipitor* (2010), a GPS navigational system which occasionally makes suggestions such as "follow a cloud".

By breaking with the functional, impartial expectancy of software, whimsical interfaces encourage the interactor to reflect on the interaction itself. In the particular case of *Serendipitor*, this is done through the tongue-in-cheek notion of using a GPS navigational systems to help one wander.

MISCHIEVOUS INTERFACES

Mischievous, or abusive (Wilson and Sicart 2010) interfaces are those that intentionally break with the interactor's expectations, behaving inconsistently and unpredictably, lying to the interactor or being extremely challenging. This can be seen in the video games *Unfair Mario* (2013) which uses the players expectation of a *Mario* video game against them, regularly resulting in death of the video game character and player frustration. Overcoming mischievous interfaces can, however, empower the interactor, giving her the feeling of 'beating the designer'.

Fig. 3. *Unfair Mario's* attempts at misguiding the player, as following these instructions will lead to a game over.



4 CONCLUSIONS AND FUTURE WORK

Convergent, user-friendly systems reduce the complexity of human experience into goal-driven interactions in which a successful interaction is productive, and a successful interface is one that either disappears or is pleasurable to engage with. This artificially limits the potential of interactive digital interfaces as a creative medium for novel, surprising experiences beyond the functional and pleasurable. In this paper we have highlighted the need for divergent systems that provide new methods of interaction. We have suggested that the artistic technique of defamiliarisation could be used as a means to create divergent systems, and offered possible methods to do so, through defamiliarisation of interface, information or emotion.

While this paper is exploratory in nature, we have started to prototype systems that explore each of the suggested methods and evaluate their potential to create defamiliarisation, having started with a smartphone application for mobile photography—which manipulates and transforms the captured images randomly and without the interactor's control—with promising preliminary results. Future work will consist of further experiments of the enunciated methods for achieving defamiliarisation. Through them, and their respective evaluation, we aim to discover the principles and mechanics that are necessary to create divergent systems that enable creativity and serendipity, and can contribute to reclaim chance, unpredictability and surprise into our daily interactions with technology.

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