

**NETWORKED CREATIVITY:
ETHNOGRAPHIC PERSPECTIVES ON CHIPMUSIC**

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Abstract

This thesis examines creativity as manifested in an online and transnational network of musicians who compose chipmusic, a kind of electronic music characteristic of 1980s early home computers and videogame sounds. The primary argument is that creativity in chipmusic worlds is networked, meaning that it is dispersed across various activities that are labelled as creative: chipmusic-making, technology-hacking practices that underpin the music, digital cultural practices such as use of social media, online releases, crowdsourcing, staged and screened performances, and any other activity related to chipmusic. The thesis examines the ways in which networked creativity is mediated in the chipscene from an interdisciplinary methodological viewpoint informed by ethnomusicology, anthropology, and sociology.

Although the chipscene is geographically dispersed across more than thirty countries worldwide, the chipscene network is well-connected. Communication and music circulation practices of chipmusicians are enabled by the internet. This thesis primarily discusses chipmusic culture that suggests a rich context where creativity discourse is as intensely diverse as the chipscene itself, in which it is embedded.

In looking at the creative process and performance practices, I employ a mixed methods approach based on ethnographic research methods and social network analysis, to examine how intrinsic and extrinsic aspects of chipmusic-making, such as ideology, cultural values, network infrastructure, chiptune poetics and aesthetics, distribution of creative roles, authenticity, differentiation, genre dynamics, and intellectual property issues, shape creativity.

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For cited material visit:

thechipmusicthesis.wordpress.com

or scan:



username: onchipmusic

password: chipmusicthesis

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PART I – THEORY AND METHODS

Chapter 1. Introduction

The first chapter aims at introducing the reader to the topic examined in this thesis. Firstly, I outline the scope and aim of the thesis, presenting the methodology I employed to examine networked creativity in the context of chipmusic and the chipscene. In the first section, I clarify the use of certain key terms and concepts used throughout this thesis, such as ‘culture’, ‘networks’, and ‘scene’. Furthermore, I discuss the reasons why I adopt ethnographic perspectives on creativity and, more specifically, the case study of chipmusic. In the same section, I identify the gap this thesis addresses as well as its limitations. The second section provides a historical background of chipmusic and the chipscene. My aim is to give some context to the reader related to practices, the creative process, and certain emerging themes of study. Finally, the last section of chapter one is an outline of the eight chapters of this thesis.

1.1 Scope and aim of the thesis

This thesis is concerned with creativity in the twenty-first century, as understood in the context of an online and transnational network of musicians who compose electronic music. I am particularly interested in one specific kind of electronic music, chipmusic. In popular culture, chipmusic is entrenched as videogame music, and it represents the muzak of 1980s videogames, as it was performed on gaming consoles. People who grew up in the 1980s may have recollections of the Nintendo Game Boy and its occasional bad loads followed by the need to blow on the inserted cartridge to make it work. In the last thirty years of popular music, 1980s platforms have occasionally been used for music-making.

One such example is the synthpop band Welle: Erdball, whose members manipulated the Commodore 64 soundchip that brands their sound. Chipmusic sound is characterised by square wave ‘bleeps’ which are often left unnoticed in television commercials, as for example, in Cathedral Chedds advertisement campaign (2011).¹ Structural elements and timbres of chipmusic are also found in pop songs, such as Black Eyed Peas’ “The Time (Dirty Bit)” (2010). In mainstream popular music, chipmusic’s stylistic elements are predominantly used to enrich the sound palette of a musical piece. It is a means of ‘funking-it-up’, making it more fashionable. For the informed audience, however, chipmusic has an entirely different meaning, extending beyond these practices.

Chipmusic indicates a creative process by a network of people who interact primarily on the internet. For chipmusicians, chipmusic is the sound of technological limitations and as they imply themselves, their aim is to expand creativity by using low-level technologies. The network of chipmusicians, or the chipscene as it is referred to, includes visualists (artists who create visual graphics), musicians, and fans. They originate from almost every continent, and come from diverse social milieus, ethnic and age groups. Chipmusic is as diverse as its composers; there are diverse creative channels available for chipmusic-making, a variety of online communities for communication and dissemination purposes, chipmusic-making workshops, local events, streamed performances, and other mediated practices. Within this highly complex web of individual and collective identities, an equally multifaceted nexus of values and beliefs that regulate ideologies and practices exists.

I am examining chipmusic as a subgenre of electronic music, and the chipscene as a digital culture.² Unlike other digital micro-cultures, chipmusic is complex in the

¹ *New Chedds TV advert (Statues)* 2011, video, Cathedral Chedds, 30 August, accessed 16/10/13, <<http://www.youtube.com/watch?v=TruHBpRIAow>>.

² I understand the term ‘culture’ as defined by Williams (1977). Culture is dependent upon societal and economic transformations and is seen as “a constitutive social process, creating specific and different ‘ways of

manifestations of its creative practices: it can represent cultures found at the margins of urban centres; elite ensembles practicing avant-garde music; global mainstream audiences of gaming enthusiasts, as well as local networks of computer geeks. The arbitrariness and diversity of the chipscene enable us to understand problems and challenges related to creativity in depth and scope. As is reflected in the literature, although communities that bring together people sharing common music practices are significant, they represent a limited sample of the overall aesthetic experience across societies (Hesmondhalgh 2013:loc. 3237-3239). In contrast to this, chipmusic provides an adequate large-scale sample. Thus, the interpretation of the creative processes in chipmusic can lead us into gaining a holistic perspective about types of networked creativity in electronic music.

This study will show that chipmusic as a culture consists of several similarities and dissimilarities, at national and transnational levels. This is to be expected primarily due to chipmusicians' different cultural and social backgrounds, but also because the internet acts as a catalyst for social transformation. The emergence of the internet in urban and rural areas has supported the development and sustainability of the chipscene globally. Moreover, in internet realms, information travels faster and this has an impact on practices: change is constant and rapid, and one can experience online and offline several drastic modifications, especially related to the inherent beliefs, values and etiquette in this music network. Despite ongoing deviations, the chipscene maintains its accessibility and openness; it is a community that does not require registration, and as will be explained in chapter four, there are not any exclusion criteria based on location, class, age, gender, or ethnicity.

life''' (Williams 1977:19). In addition to this, I often use 'cultures' to acknowledge variability and complexity, as suggested by Herder (a viewpoint seen in the aforementioned work of Williams).

The theoretical framework of this thesis examining this network of musicians evokes ethnomusicological and popular music studies methods. Chipmusic is studied within its social-behavioural context following Merriam's argument:

Music is a product of man and has structure, but its structure cannot have an existence of its own divorced from the behaviour which produces it. In order to understand why a music structure exists as it does, we must also understand how and why the behaviour that produces it is as it is, and how and why the concepts that underlie that behaviour are ordered in such a way as to produce the particularly desired form of organised sound. (Merriam 1964:7)

Thus, one of the purposes of this study is to understand chipmusic structures by examining its practices, processes, ideologies, and mediated politics that are socially nuanced. Furthermore, in this thesis music is understood to be a socially meaningful activity whose significance extends beyond music itself (Stokes 1994).³

I use the term "ideology" as is understood from an ethnomusicological perspective. The term primarily refers to musical ideology. As Nettl outlines, in order to organise the study of musical culture, one needs to extrapolate their research in "fundamental values or ideology" that are shared in a culture, as they provide the research with the opportunity to study in depth and in detail the relationships between music, society, culture, concepts, and behaviour (Nettl 2005:226). In ethnomusicology, ideology refers to a set of values and beliefs that is shared among a musical culture.

Ethnography is the proposed method in this study, as it is a useful tool for understanding similarities and dissimilarities in a wide cultural context (Boellstorff et al. 2012) (this argument will be analysed further in chapter three). The purpose of anthropology and its sub-discipline, ethnomusicology, is to extract truth analytically in a culture, engaging with the music phenomena and the discourses or discursive formations that surround and

³ For such studies see for example, Grant 2004, Khoo et. al. 2013.

contextualise music. There are other ways to retrieve meaning, for example, through psychoanalysis, a fundamentally dialectic process where truth emerges inter-subjectively through the hegemony of the analyst. Other branches of psychology also risk overlooking meaning which lingers in hidden cultural patterns such as the ones mentioned previously.

In this thesis there is an ongoing dialogue between diverse discourses, aiming to transcend contextual distortions that may occur from the latter (perspective shared in Silverstein and Urban 1996:3-4). This study promotes interdisciplinarity, considering arguments from popular music studies perspectives (Middleton 1990:146), and aims to analyse diverse discursive patterns. However, before I discuss this further, I would like to define the fieldsite of this research project.

As this is an ethnographic study, defining the fieldsite is important. Taylor describes the fieldsite as an assemblage of “actors, places, practices, and artefacts that can be physical, virtual, or a combination of both” (Taylor 2009 in Boelstorff et al. 2012:60). In this ethnography, locating the fieldsite is challenging because the chipscene is a social network that exists and interacts on the internet as well as at a variety of geographical places. Additionally, local chipscene activity constantly fluctuates. At different times in chipmusic history, hubs of cultural activity were formed in diverse geographical locations (see below in this chapter). As will be demonstrated in chapter three, a variety of research tools and methods were used to understand chipmusic culture, which can be at the same time a) an internet culture, b) a clubculture, c) a global and cosmopolitan music scene, and d) an assortment of local scenes. To respond accordingly to the chipscene’s variations this ethnography is comprised of digital and physical, multi-sited fieldwork conducted in 24 months between 2011 and 2013.⁴ To combat challenges I opted for multi-sited fieldwork,

⁴ For an extended analysis of methodology and research methods, see chapter three.

which is predicated on “multiple sites of observation and participation that cross-cut dichotomies such as the ‘local’ and the ‘global’, the ‘life-world’ and the ‘system’” (Marcus 1995:95). Hence, the purpose of this ethnography is to scrutinise multiple layers of cultural formulations in chipmusic as they are experienced in a dynamic fieldsite consisting of digital and physical places.

In this thesis, I am particularly interested in social networks that have been rather overlooked in musicological discourse.⁵ In the only study on musician networks, Brinner highlights the importance of using networks to sketch a sociocultural map:

[T]o show how individuals navigate this terrain as musicians, listeners, and human beings. To do so is to speak in terms of paths, convergences, and borders to be crossed. One map will not suffice as the physical terrain intersects with the spiritual, political, social, and musical/stylistic in various ways. The social terrain must be understood not only in terms of the ethnic, religious, and regional identities of musicians and audiences, but also in terms of social networks, some of which are transnational in scope. (Brinner 2009:12)

In sociology and internet studies, the analysis of social networks has been prominent. Rainie and Wellman argue that in the incorporation of gadgets in daily activities, people increasingly turn into networked individuals (Rainie and Wellman 2012: Kindle loc. 327). With the use of mobile phones and the internet, we have the potential to create large social networks that extend beyond our own national geographical boundaries. Looking at networks is particularly useful for two reasons. Firstly, scrutinising the network structure “allows us to see that faraway elements end up being strongly connected, through incredibly short paths of relation and communication” (Caldarelli and Catanzaro 2012:vii, i). As will be demonstrated in chapter four, analysing the chipscene network revealed patterns of chipmusic activity that were not traced while doing fieldwork. Secondly, networks also show

⁵ On this argument, see chapter two. However, there are certain scholars, such as Théberge, who have underlined the importance of networks for music research (Théberge 1997:131-ff).

that certain systems that are not externally controlled are capable of developing an internal order (ibid).

In this attempt to understand the importance of place for a digital culture such as the chipscene, I found that network visualisation would offer significant insight into examining how social places are transformed with the impact of the internet. This thesis also describes this developed model of social mapping and visualisation of the chipscene. Although network visualisation and mapping are widely used in the study of the internet (see for example Hine 2007, Rogers 2012, and Graham 2014) visualisations are either relying on existing geographical maps (for example, tracing Twitter activity in specific countries/areas) or, on node and edge networks based on Graph Theory – such as the ones composed in computer software such as Gephi and NodeXL –, which can be difficult to interpret visually when importing large datasets. In this study, I am interested in the politics of mapping digital place in geographically related areas. The chipmusic map is divided by country, where size and location depends on national and international interactions and activity during the two years of the ethnography. These factors are a result of mixed data: quantitative, ‘big data’ from Web analysis (Twitter, Facebook, online communities and other social media activity) are weighted by qualitative results from ethnographic fieldwork. As will be explained further in chapter four, the chipscene introspection entrenches new places of performativity, where the meaning of place is dialectically found at the cross-fertilization of geographical locations and non-geographically defined, digital spaces.

This thesis centres on creative processes. As will be explained in the second section of this chapter, throughout this study, creativity is seen as a cultural process and not as the exclusive practice of heroes, geniuses, or other innovators, following perspectives that attempt to disconnect creativity from the genius (for example Becker 1982, Toynbee 2012,

and in anthropology, Leach 2007, Hallam and Ingold 2007, Demian and Wastell 2007). In this study, creativity is seen as a multi-layered, culturally embedded concept that encompasses chipmusic-making practices but also other chipmusic-related practices, such as social networking in online communities and social media, promoting chipmusic, organising events, performing in digital and physical places and so on. What I wish to show is that in a digital music culture, creativity is also influenced by extra-musical factors. Some of these factors are technological, such as the development of musical instruments, learning practices, aesthetic values and beliefs, digital world challenges, for example sampling and intellectual property issues, and community support – that is, feedback one receives after uploading their music online.

Furthermore, this thesis is also a historical account of chipmusic and the chipscene, as anthropology inevitably becomes history. It is a cultural history, in the form of ‘thick description’ (Geertz 1973) of the chipscene, in which peoples’ narratives are outlined within the general framework of chipmusic culture. My emphasis on writing a cultural history of chipmusic is inspired by Sterne’s cultural historiography of sound in *The Audible Past* (2003): “[t]o study technologies in any meaningful sense requires a rich sense of their connection with human practice, habitat, and habit. It requires attention to the fields of combined cultural, social, and physical activity – what other authors have called *networks* or *assemblages* – from which technologies emerge and of which they are a part.” (Sterne 2003:8). Chipmusic history is mostly based on chip-related social agents’ narratives – people who are somehow involved in the chipscene, as chipmusicians, event organisers, creators, or otherwise. Throughout this thesis, I provide diverse ethnographic descriptions that are located across the fieldsites in which I conducted fieldwork.

I will now establish the limitations of this thesis. As a fieldsite, the internet is geographically dispersed, and bounded by non-geographical discourse patterns (Markham 2011:115-116). The first social activity that defines the boundaries of this study is music-making. I am concerned with chipmusicians' practices, rather than with visual artists or fans. Although their role is important in the chipscene, my aim is to focus on creativity as experienced through music-making. In terms of an overall consideration of the chipscene, chipsceners' narratives come to the fore in some parts through the historical account – in that sense, they are not entirely absent from this thesis. Methodologically, this thesis aims to be interdisciplinary, bringing together theories, methods and concepts from ethnomusicology, anthropology, as well as cultural and internet studies. I am concerned with nuanced discourses, narratives and ideologies as well as their relationships rather than understanding chipmusic using analytical ethnomusicological methods. Finally, the reader will not find an autoethnographic account of the chipscene in this thesis, in the sense that I did not become a subject of research nor a practitioner of chipmusic.⁶

At this point, it is necessary to clarify my approach in relation to terminology. In this introduction I have already mentioned two terms, which are somehow problematic: 'community' and 'scene'. In the social sciences, there is not one agreed definition of 'community' (Boellstorff et al. 2012). Although it is widely used as 'virtual community' in internet studies, one has to define how it is used in a research project (ibid 56-57). In this context, unlike Turkle (1995) and Lysloff (2003), I do not attempt to understand contemporary online communities as simulations of reality, hence, 'virtual', but rather as meaningful places that construct the realities of 'networked publics' (boyd 2007). In this respect and extending Toynbee's (2012) argument, we are moving towards new forms of "transnational citizenship". To clarify this point, national citizenship remains the dominant

⁶ For an analysis of autoethnography and its scope, see Ellis and Bochner 2000 and Hine 2015.

way of identification and connection to a place; transnational citizenship mainly refers to diaspora, and after the emergence of the internet and the formulation of geographically dispersed networked publics one can argue that there is a new type of online diaspora – mobile groups of people who migrate in digital and physical places. In practice, in this thesis I only employ the term ‘community’ when discussing online chipmusic communities primarily because this is the term chipmusicians use when referring to these online places.

The internet is no longer a terra incognita, a vast cyberspace, an information superhighway or any other limitless metaphor of simulation and virtual reality. It is accounted for locally, in networks and other ways of localisation (for example, by means of local advertisements depending on the country where one is logging online from). Additionally, we can no longer think of globalisation as an inevitable process of homogenisation which will render the nation useless, supporting naïve prophecies of the 1990s. Rather, we can tame concepts of transnationalism to explain phenomena of networked publics. The chipscene offers a new conceptual map in order to understand cosmopolitanism, as the concept has been examined in Turino, 2000, Novak 2006, Stokes 2007, and Feld 2012.⁷ In addition, internet communities cannot be merely described as a “seamless flow of data” where “a network of nodes [...] are addresses but not places” as Lysloff proposes (Lysloff 2003:28). Place, as it is geographically understood, has defined communities for decades; almost every ethnographic research is geographically bound (see Landzelius 2006). Internet cultures however, change the way place is conceived and experienced in ways that I will explore later in this thesis.

⁷ I refer to the terms ‘cosmopolitan’ and ‘cosmopolitanism’ as seen in Turino (2000), referring to ideas, traits, and practices of specific historical, regional, and cultural origin, that have originated in centres of power, but have been circulated translocally in the context of geo-political power formulations, structures, and networks.

The term ‘scene’ is suggested to describe “particular clusters of social and cultural activity” (Straw 2004) whose purpose is the intrinsic support of creative activity (O’Connor 2002). Although the problems with ‘scene’ have been extensively examined in cultural studies (Bennett 1999, Straw 2004, Hesmondhalgh 2005 and 2013), these perspectives must be advanced in order to embrace current cultural differentiations of scenes. For example, scenes do not necessarily refer to youth cultures. Class, race, diaspora and ethnicity still generate communities, as Toynbee writes (Toynbee 2000:113), but internet cultures have affected this, having significant ramifications for the concepts of locality and globality (Kahn and Kellner 2003:304). Inevitably, in both cases, ‘community’ and ‘scene’ are two terms communicated by groups of people within the chipscene.⁸ They are used to describe the discursive agency of this group of people.

This thesis primarily addresses a gap in the ethnographic study of creativity in digital music: how and why do people compose music in the twenty-first century? From the perspective of music studies, this research adds up to academic discourse by examining culturally creative processes, incorporating the concept of social networks, and understanding genre formations in digital realms (see also Holt 2007) – as Born has suggested at her talk at the Music, Digitisation, Mediation Conference in Oxford (2013), there are creative new approaches to thinking about genre in the twenty-first century (some of these are examined in chapter eight of this thesis). This thesis is also a contribution to anthropology as an ethnographic study of a transnational and online network of musicians, as well as to anthropological concepts such as ‘place’. Furthermore, this study offers a useful tool for researchers in humanities and the social sciences, as the developed network visualisation model can be applied to other studies of social networks. Finally, my aim is to

⁸ On the subject of the use of the terms ‘community’ and ‘scene’, Brinner has outlined that “[s]cene is a more appropriate term than community for describing the applications that formed in the 1990s because it indicates something that people can flow in and out without necessarily feeling bound to one another by communal ties”. (Brinner 2009:29)

provide a versatile tool applied to both theory and cultural interpretations of music, which involves several theoretical trajectories, transcending epistemological, ideological, and substantive differences among the above academic disciplines.

This research project engages with complex multi-layered problems which are local and global, develops innovative research methods, methodologies and analytical techniques related to ethnography, and it provides new empirical material based on ethnographic methods. Furthermore, it develops theoretically and methodologically the intellectual agenda of the fields of ethnomusicology, anthropology and internet studies, offering scope for further analysis. For example, the visualisation method developed here promotes the collaboration of ethnography (qualitative and quantitative data), statistics (normalisation of data) and graph theory (visualisation). Intellectual precision, robustness and consideration of ethical issues related to the internet account for the rigour of this academic study. This research also has an impact outside academia as it is mapping changes in society in terms of creativity, business practices, and peoples' movement globally. The thesis is also a form of conservation and presentation of a musical culture. It has the potential to encourage production of cultural artefacts such as films and radio programmes. During fieldwork I assisted in the making of the documentary *Europe in 8 bits* (2013) and participated in radio broadcasting programs to discuss chipmusic ('Touring the Soundscape', Oxide Radio, 2011 and Lyric FM interview, 2010). In some respects, this thesis discusses social inclusion by means of participating in music-making processes, and it also contributes to the improvement of legal and other frameworks for intellectual property rights by examining copyright and sampling. The study also enhances cultural understanding of issues and phenomena related to creativity in the digital era, as well as decoding public attitudes and values. It offers an insight into new kinds of economy supported by online services such as crowdsourcing, which is an important element of the chipscene's infrastructure. Lastly, this

thesis aims at promoting the impact of culture on creativity in order to communicate a better understanding to interested stakeholders who create and develop funding opportunities, such as the European Union and industry.

The following section aims at introducing the reader to chipmusic and the chipscene network by providing a brief historical background.

1.2 The historical background of chipmusic

The precursors of chipmusic can be traced back to the 1970s, following the home computer revolution. Such platforms were marketed as educational tools with video gaming potentials (Reunanen and Silvast 2009:289) and offered the opportunity for any user to learn how to write code and their own programs. Following this radical technological development that gradually affected people's daily lives, an interest in computer hacking emerged. Hacking is a process of unlocking the security binds of computer software and gaining free access. It requires knowing computer languages that are used for the creation of programs. Taylor describes a hack as possessing three qualities: simplicity, mastery, and illicitness (Taylor 1999:15). A hack must be simple but impressive; hackers express their superiority based on their computer knowledge and skills through this illegal act.

By the early 1980s, home computers featured technological capacities that could be further expanded. The Commodore 64 (1982) was the first computer with advanced graphics and sound. Other Commodore computers that followed, such as the Amiga 1000 (1985), Amiga 500 (1987), offered more possibilities for development. In 1985, the major competitor of the Commodore series, Atari ST, was introduced. Such platforms were marketed accordingly around the world. For example, the Commodore 64 was advertised as

‘The Computer of the Republic’ (*Tasavallan tietokone*) in Finland (Reunanen and Silvast 2009:290) and in America and Australia the advertisement asked “Who’s keeping up with Commodore? The Commodore is keeping up with you”, which implied that all power was with the user.

Home computer users who were keen on programming subscribed to hacker ideology in their search for experimentation and discovery (Wark 2004) but also to express their playful stance against technological determinism (Jordan 2008:13). These computer amateurs, or hobbyist inventors, as they were called, often formed groups of people working in collaboration. During the 1980s, Bulletin Board systems (BBS) were a communication tool used to connect hobbyists.⁹ One of the practices of the first hackers was to crack computer programs and distribute them for free. As Carlsson states, hackers, or crackers as they were named, removed any copy protection and “like graffiti writers they tagged their work by adding a signature to the game” (Carlsson 2010:7). This tagging, a means of ‘street credibility’ (Tasajärvi 2004:12), was realised in the form of a short audiovisual introduction, where the name of the hacker team and the date of cracking was presented.

By the mid-1980s, groups of hackers released their intros as separate productions underpinning the demoscene.¹⁰ Moving away from cracker aims, the purpose of the demosceners was to create demos that were short audiovisual clips that demonstrated the

⁹ Bulletin Board System (BBS) is a computer system which offers a communication portal. The user can log in using a terminal program and upload or download data, read notes and bulletins, and exchange messages with other users through e-mail, message threads, and direct chatting. BBS were accessible over a phone line using a modem. For this reason, BBS primarily functioned locally, as phone dialling outside a local area would be significantly expensive. However, as Carlsson explains (2008a:154), there was contact between groups of hackers in Europe and the United States through BBS.

¹⁰ Historically, Homebrew Computer Club’s ‘Daisy Bell’ (1975), a clip composed upon the combination of an Altair 8800 manipulating an AM radio is believed to be the first documented demo (Polgár 2005:41, Carlsson 2008a:156-157).

skills of the programmer and the creative uses of the computer.¹¹ These demonstrations, or ‘demos’ for short, were primarily programmed on the first home computers previously described, which are mainly based on 8-bit technology. The demoscene is regarded as being the first and largest subculture with an interest in audiovisual hacking (Carlsson 2008a). Demosceners, by pushing the machines to their limits and beyond, set the foundations of an aesthetic that was shaped by technology. The basis of this aesthetic was situated in the process of coding; everything in the creation of a demo relies on programming code in low-level programming languages such as Assembly, Basic or C. Groups of demosceners – or demogroups – competed in Local Area Network (LAN) parties, which were the largest demoscene gatherings. Every member of the group knew how to write code and a few members were working on visuals, whilst others worked on audio properties of demos.

Demosceners shared a free culture ideology (later analysed by Lessig 2004) upholding that software should be free or open source (open in the sense that it is available for anyone to manipulate and develop). The concept of authorship, however, was treated in terms of their own understanding. One example that illustrates this is related to audio sampling in the making of demos. In the early days of the demoscene, pop songs and video game music samples were used as the demo’s soundtrack (Carlsson 2010:8) programmed on the specific computers. In later years, demosceners composed their own music and often copied the code of existing video games incorporating it into their creations. In the pre-existing code, they examined the musical structures and attempted to imitate some of these sounds in their compositions.

¹¹ See, for example, Fairlight demogroup’s demo entitled “Illusion”, which won the second place at the Computer Crossroad meeting in 1993 (*Amiga Public domain Fairlight Illusion*, demo, Matthew Willerton, uploaded on 1 November 2007, accessed 30/12/13, <<http://www.youtube.com/watch?v=XusRR5N5kGM>>).

In the early days of the demoscene, computer features impeded music composition in the sense that programmers could only see their coded music but not listen to it directly. In order to listen to the composed music, one had to compile the code onto an executable program (gwEm 2013, interview). Although there was music software available, it depended on traditional notation techniques that had to be translated into code prior to incorporation into demos, which was in fact impractical.¹² Chris Hülsbeck created for the Commodore 64 *Soundmonitor* (1986), the first music software that was partially adopted by demosceners, and also inspired the creation of other similar music programs, which copied its design features. The innovative character of *Soundmonitor* lies in the program outlook style and the way sounds were organised using a new type of computer music notation evoking programming language orthography. Such music software programs were called ‘music trackers’, or simply, ‘trackers’.¹³

Trackers allowed visualisation and playback of music composition in an environment functionally similar to digital audio workstations. As described in the manual of maxYMiser, an Atari-based tracker, “a song is made up from patterns, and a pattern is a sequence of notes and commands”. Notes are coded in letters and octaves (e.g. C-4, C#4) and commands in hexadecimal systems, which use both numbers and letters (e.g. F05, A0F). The notes are represented in a sequencer where music melodies are organised in patterns that run vertically in the same fashion that code is written and read. In contrast, harmonic structures are realised horizontally.

Trackers rely on the looping function (Driscoll and Diaz 2009) – a practice well-established in 8-bit music to save computer memory and “often a result of technological

¹² *Commodore Music Maker* (1982) was one such music software available for the Commodore 64 (see further in Carlsson 2008a:157).

¹³ As Lysloff notes, music-making in trackers is simply called “tracking”, which stands for “coding music” (Lysloff 2003:33).

constraint” according to Collins (2008a:218). However, looping also serves to create sequences that allow melodies to play indefinitely and arguably, with 16-bit platforms and beyond, it is no longer solely motivated by technological limitations like lacking memory. The name ‘tracker’ was taken from Karsten Obarski’s *Ultimate Soundtracker* (1987) for the Commodore Amiga that was one of the first widely-used music software by demosceners. As Carlsson states (2008a:157), numerous programmers in the demoscene worked on *Soundtracker*’s code to improve it and to develop new trackers such as *Noisetraacker* (1989), *Protracker* (1990), *Scream Tracker* (1990), *FastTracker* (1993) and *Impulse Tracker* (1995). Creating a functional and stable tracker is a lengthy process – months or years may be required as gwEm explained to me (gwEm 2012, interview).

The emergence of the chipscene was documented online in the 1990s despite the fact that the term ‘chiptunes’ was first used in the 1980s to describe the music that was programmed for demos, keygens and other short clips (Carlsson 2010, see also personal interview with Sunni 2013). Other names used to describe chipmusic are ‘8-bit’, which reflects the technology upon which it is made, ‘micromusic’, a term borrowed from the first online community that emerged in 1999, ‘fakebit’, which signifies chipmusic made on emulators rather than early home computers and videogame consoles, and ‘videogame music’, a term of convenience primarily used by event organisers. In the early 1990s, certain demosceners who were programming music for demos started to view chiptunes as standalone music composition rather than as a demo attribute. It was at this point that the chipscene began as a bifurcation of the demoscene and formed an independent internet-based collective.

At the beginning of the chipscene, chipmusic was composed on 8-bit consoles such as the ZX Spectrum, Commodore 64, Atari ST, and the Nintendo Game Boy, using trackers

and other music software. Chipmusic was not genre-specific and was circulated and promoted via netlabels, which are non-commercial organisations found in the digital market.¹⁴ Chipmusic could be distributed as a compressed sound file (usually, .mp3) or as computer module file format (.mod or .sid) that could be opened and edited in trackers. The first chipmusicians were demosceners, and the selection of technology only came naturally. Chipmusic sound is defined by the soundchip used in 8-bit platforms. All 8-bit platforms, except for the Nintendo Game Boy, where the central processing unit (CPU) handles the sound, use special soundchips to deal with sound properties. The SID chip, for example, used for the Commodore 64, is the most flexible, and for this reason, many chipmusicians express their preference for it.¹⁵

Chipmusic was a means of exploring creativity in previously unsought of ways through the specific technology, which by the mid-1990s was already becoming obsolete. One could seek information about chipmusic-making online, where video tutorials and documents are distributed. In the 2000s several changes happened in the chipscene, from the creation and distribution of chipmusic-making software for the Nintendo Game Boy console (notably, Little Sound DJ and Nanoloop), to the emergence of online communities and development of alternative economies to fund chipmusic activities (for example, crowdsourcing). As will be demonstrated in this thesis, the development and implementation of chipmusic-related technology in the form of handheld technologies and soundchip emulators, have affected the ideology regarding creativity in the chipscene, leading to an emerging hybridity in the chipmusic genre that was disliked by certain chipmusicians. Furthermore, chipmusic grew in popularity in the same decade, and the openness and availability of the chipscene online brought certain challenges with regards to copyright.

¹⁴ For an overview of netlabels and chipmusic circulation and infrastructure, see chapter four.

¹⁵ Soundchips and their properties will be described and analysed further in chapter five.

The chipscene is a salient example of musical cosmopolitanism, a musical, cultural and technological hub of human activity and agency, where the “advances in communication technologies...increases in their power, capacity, and reach, coupled with their miniaturisation and distribution across the social field... have wrought fundamental changes in the way music circulates” (Stokes 2007). As a chipmusic event organiser in Paris told me, without the internet the community would have to rely on other ways of circulating their music, perhaps as happened in cassette cultures; however, as he noted, such a process would be time consuming and not as direct as the internet.

1.3 Thesis outline

In this final section of the first chapter I aim to provide the reader with a map of the thesis. In total, the thesis is divided in three parts: ‘Theory and Methods’, ‘Defining the Chipscene and Chipmusic’, and ‘Chipmusic in Practice’.

The first part of the thesis (‘Theory and Methods’) comprises three chapters. The first chapter acts as the introduction of this thesis, clarifying the scope and aim. Furthermore, it clarifies the methodological viewpoint and provides a brief historical overview of chipmusic. In the second chapter, the primary theoretical and conceptual axis of the thesis is presented, evolving around the theme of ‘networked creativity’. For this, I am utilising anthropological, ethnomusicological, and sociological theories, most notably Born’s ‘relayed creativity’ (2005) informed by Castells’ ‘network society’ (1996), Becker’s ‘art worlds’ (1982) and Crossley’s ‘music worlds’ (2015). Secondly, I critically analyse literatures related to creativity, social network analysis, chipmusic, and other ethnographic perspectives on electronic music.

The first part of this thesis ends with chapter three. This chapter aims at clarifying research methods that I employed for the study of chipmusic and networked creativity. On the one hand, I explain the dynamics of anthropological fieldwork in digital and physical places. On the other hand, I clarify the social network analysis. This is a significant chapter that highlights the relative newness of the field, in relation to researching transnational and online social networks of musicians. Chapter three includes a brief outline of my pre-doctoral encounters with chipmusicians and a section in which I explain how the geographical and discursive diversity of chipmusic presented methodological challenges that were surpassed with the adopted mixed methodology. In this chapter, one will also find a note on research ethics, an area that was often neglected in ethnomusicology but has been picked up in recent years.

The second part of the thesis entitled ‘Defining the Chipscene and Chipmusic’ comprises two chapters. The pair of chapters four and five centre on the people and their music. In these chapters I look at who chipmusicians are, how they interact, why and how they compose chipmusic, which musical instruments they use, what creativity means to them, and what their view on aesthetics is.

More specifically, in chapter four, I examine politics of creative processes in the chipscene that are governed by different values and beliefs across chipscene generations. I start by walking the reader into the field and explaining certain fundamental concepts related to the creative process. The second section is an ethnographic perspective on my informants’ historical and oral discourses related to places of chipmusic creation in digital and physical places. In the specific section I present the characteristics of the chipscene network and issues that have influenced its development (for example, drama, plagiarism, and mobility).

The last two sections represent the social structure of the chipscene based on ethnographic information and social network analysis.

Chapter five centres more on the aesthetic dimensions of chipmusic as viewed by chipmusicians. In the first section I establish a theoretical perspective on aesthetics as informed by literatures in anthropology, ethnomusicology, and sociology of music. Secondly, I present the social context of chipmusic in which aesthetic discourse is transformed. For this, I am looking at the poetics and materiality in chipmusic. The last four sections examine the cultural object of chipmusic (soundchips and chiptune sound), the influence of online communities as ‘institutions’ on the evaluation system of chiptunes, and the rhetoric of nostalgia as well as its implication for chiptune aesthetics.

The third and last part of the thesis entitled ‘Chipmusic in practice’ examines three aspects of creativity in the chipscene: performance, copyright, and authenticity. More specifically, I am looking at the ways chipmusicians perform their music, as well as how chipmusic is visually mediated as a networked culture, and what the impact of copyright and authenticity is on the creative process based on chipmusicians’ narratives.

Chapter six centres on musical performances. In this chapter I examine ‘staged’ and ‘screened’ performances. Here I deal shortly with the concept of ‘liveness’ in chipmusic prior to scrutinising various performances in chipmusic. In the first section I analyse staged performances in the field, kinaesthetic characteristics, visuals, as well as street performances. The second part centres on screened performances and more specifically, video clips and streamed events. This chapter points out the transnational character of the chipscene and includes rich ethnographic examples from various countries across the

network of chipmusicians, emphasising the significance of performative practices as a way to enhance the connectedness of the chipscene network.

Chapter seven looks at how aspects related to creativity, such as copyright, may influence creative practices in the chipscene. My aim is to examine the copyright problems that chipmusicians experience and argue that copyrights in their present form are not suitable for protecting chipmusicians or, for what it is worth, other creators whose practices are enabled by the internet. In order to structure my argument in terms of the law, I attempt to bridge ethnographic perspectives on chipmusic practices with legal discourse. For this reason, the ethnographic voice in this chapter may seem less apparent than in other chapters but my perception is that this is needed in order to engage with academic debates regarding copyright and creativity. The first section of chapter seven examines a court case in which chipmusicians litigated against popular musician Timbaland accusing him of musical plagiarism. Secondly, I examine the mutually sustaining relationship between musical plagiarism and chipmusic. The third section aims at presenting the challenges that chipmusicians face in the creative process with regards to copyright. The last section juxtaposes issues of copyright in networked creativity.

Chapter eight centres on the discourse of authenticity in chipmusic. I am interested in authenticity as a method of differentiation and genre formation. The first two sections examine the theoretical framework of authenticity and genre in chipmusic through ethnomusicological and popular music studies perspectives. The third and fourth sections present ethnographic accounts regarding the aforementioned themes. And the last section analyses genre dynamics in chipmusic.

The thesis ends with concluding chapter remarks. Finally, the appendix includes a sample of the collected data.

Summary

The purpose of this chapter is to provide an outline of the argument of this thesis, to explain the background of the methodology and research context, to describe its impact, to overview the history of chipmusic and the chipscene, to outline the framework of the examination of creativity, and finally, to summarise the chapter outline of this thesis. The following chapter will present the theoretical and conceptual framework of networked creativity, which is the central theoretical axis of this thesis, and examine critically any literatures related to theory, methods, and previous research on chipmusic and other ethnographic perspectives on networked publics and electronic music.

Chapter 2. Literature review

The first chapter of this thesis gave an overview of my aims and scopes. In this chapter, I focus on establishing the theoretical and conceptual framework in which networked creativity is examined in this thesis, influenced by sociological and anthropological perspectives that enhance the ethnographic content of chipmusic. Additionally, there are three sections that review critically relevant literature in relation to social networks and social network analysis, previous chipmusic research, and ethnographic perspectives on electronic music.

2.1 Theorising and conceptualising creativity in a social context

Music-making involves a chain or network of relationships among musicians, musical technologies, and listeners. (Keislar 2009:12)

On my first journey to Paris in 2011, I observed a chipmusic-making process by a French chipmusician, Morusque. He was a bearded man with long curly hair in his late-20s, early 30s at the time. He directed me to the open plan sitting area of the 6B, the building where a chipmusic event would take place later in the evening, where other chipmusicians also sat. With the Game Boy in his hands, and the LSDJ cartridge on board, he switched on and I recognised the familiar ‘blip’ Nintendo start sound. First, he switched quickly between the multiple menus of LSDJ; I figured he wanted to compose a beat. “Do you usually start by building the rhythmic section?”, I asked. He said that for the chiptune genre he is engaged with (namely, electronic/dance) the beat is important and, therefore, the rhythmic structure has to be central in the creation. He composed a solid, noisy, 4-beat drum chain, emphasising the first and third kick. “If you want deep bass, you need to do this setting”, he told me, and created a 4-beat phrase. He placed a C6 note on every beat, then moved to the “Groove” menu and added 50% swing. At the “Instrument” menu he selected “Envelope 5” and opted for a square wave. The end result was a low-frequency bassline with a mid-tempo drum beat and an oscillating arpeggio melody evolving in C, the tonic.

I observed the music-making session by almost staring at his Game Boy ‘performance’ – the way he tapped quickly on the two primary buttons, how he changed from chain to chain to create the various melodic structures. Melodies were composed with intuition. When I asked him, he *knew* which sound would work. Intuition is not disconnected from other ways of knowing in chipmusic – for example, memory that has been built up through repetitive exercises of writing basslines on LSDJ is another method. Morusque finished his chiptune in about an hour’s time. It was a short but well-structured musical piece, characteristic of the electronic dance subgenre that he typically composes. Following the completion of his chiptune on the Game Boy, I asked if that was it – was he really done there? His response was negative, and continued to explain that there were more steps, ‘Distribution’, for example. “Where?”, I asked. And the answer was simply “the internet”, where the chipscene network across the world would send feedback, evaluate, and recommend how to improve the chiptune, or even, listen, remix, add on, and experiment with the specific tune. Once the chiptune was uploaded, this creative manipulation would continue for as long as it would be available online.

This empirical example became my starting point when thinking about the theoretical and conceptual context of creativity. Music practices have been largely shaped by technology in the twentieth and continue to be so in the twenty-first century. To a certain extent, creativity in electronic music in these centuries has been defined by the need for control over the parameters of music (Keislar 2009:17) and the empowerment that technology has brought. In this process, the development of computers and their use in music-making has become prominent. Such technological advances have led to the prosperity of electronic music in modernity and late modernity (for example, for an account

of computer music and the avant-garde, see Born 1995).¹⁶ Gradually, sound-recording technology has enabled music to become less abstract and to “play with levels of allusion to this world...juxtapose fragments of it...and transform them” (Keislar 2009:17). One such example has been tape recording, where time itself could be arbitrarily disconnected and re-connected (ibid).

High technology, due to its complexity, was primarily embraced by ‘academic’ composers (Théberge 1997:227). Soon, however, simplified music technologies reached commercial release and led to a multi-layered ‘musical democracy’, a phenomenon similar to the industrialisation of the piano in the US that Craig Roell has described (Wurtzel 2007:131), where any consumer could make use of this equipment. For example, the impact of electronic amplification on popular music has allowed bands and performers to sound louder in large capacity venues. And certainly, the music studio has thoroughly affected the music experience from the creators’ perspective; a new division of labour has emerged in the studio where social relationships are strongly politicised (Théberge 1997, Meintjes 2009, and Hesmondhalgh 2013). The recordist has become the epicentre of the creative action in the studio, as Savage has argued (2011), and his/her role is fairly influential for the musical output.¹⁷ In the studio, various aesthetics developed into musical genres and, often, were attached to social movements that grew along with them, such as post-punk (Crossley 2015).

The reproduction of music has represented yet another creative development in music technology. Recording technologies have afforded material musical recordings in various forms – from vinyl discs to cassettes, some transcending temporal dimensions by

¹⁶ For the overlap and ambiguities of using the terms ‘electronic music’, ‘computer music’, and ‘electroacoustic music’ see Manning 2004:403-404, Landy 2007:9-17, and Keislar 2009:11.

¹⁷ It is worth also noting though that in-studio practices are often seen as alienating experiences of musical labour (Born 2005:25) where music is processed mechanically, limiting, thus, the collaborative and democratic characteristic of technology.

even becoming objects of commodity fetishism (see Shuker 2010), whereas others falling into misuse (for example, the mini disc). These musical recordings, or “musaics” as Negus has defined them (1992:31) are manipulated and combined sound materials aiming at audiosensory effects (Wallach 2003:38). In other words, recordings are crafted to produce an anticipated outcome that will have social effects for some listeners. Beyond this, the use of sound reproduction technologies has significant ramifications in social life, as seen in Tacchi 1998. With the growth of mobile music as mediated through mobile devices and transnational flows of music production and consumption, the social effects of music are observed worldwide (Stanyek and Gopinath 2014).

In this thesis, sociology can enrich the anthropological backbone of the research, and for this reason I turn specifically to relational sociology, and more particularly in Georgina Born’s work (2005, and to a certain extent, 2015), in looking at the theorisation and conceptualisation of creativity. This approach recognises social interactions, relations, and networks as the fundamental elements of social life. Other elements, such as ‘conventions’, ‘power’, ‘norms’, although not the primary focus, are also taken into account for they can possibly emerge or, as Crossley explains, “assume the qualities we commonly associate with them in the context of interactions, relations, and networks (Crossley 2015:13). According to relational sociology, actors are limited by their relations with others, as well as their position in social assemblages which may change within the social milieu, but actors cannot extricate themselves (ibid).

Born, when discussing the properties of creativity, has highlighted that it is fundamentally social and distributed (Born 2005:15). In her article, Born refers primarily to Gell and to a certain extent to sociology scholars who have worked on the social aspects of music and art, providing different theoretical perspectives on creativity. One of the scholars

Born discusses, in relation to the study of music and its social assemblages, is Howard Becker and his conceptualisation of ‘art worlds’ (1982). The concept of art worlds looks at interactions within and between agents such as artists, audiences, and ‘support personnel’, that is, managers, promoters, producers, engineers, and journalists who collectively help to make art and shape art forms (Finnegan 1989, Crossley 2015:8). The key concept here is collectiveness as influencing the social assemblages of entities and their actions.

Due to the complexity of music as a cultural object which has various mediations (temporal, discursive, social, sonic, technological and so on), music should not be examined in isolation (Born 2015:139).¹⁸ As Toynbee has previously underlined, Romanticism treated the creative process as mystic and denied the social aspect of it (Toynbee 2012:163), leaving it disconnected from its context. Both Toynbee and Born have emphasised the significance of examining music as part of a social assemblage, a ‘music world’, paraphrasing Becker’s concept where “new art works emerge only through the interaction of artists, co-workers, and audiences” (Becker 1982:198-199). Furthermore, Born has extrapolated the social dimensions into a ‘network of associations’ building on Latour’s Actor-Network Theory (2005) (Born 2015:139).

According to Born the nature of social and distributed creativity is primarily observed in large-scale cultural industries characterised by capital (for example, cultural organisations of film and television production companies). Drawing upon Gell’s work on *Art and Agency* (1998), Born has argued that all cultural production enacts and engages relations between persons and things, in temporal and spatial dimensions (Born 2005:16). This suggests a continuity, a dynamic creative flow in space and time. Moreover, Born has summarised Gell’s approach on agency focussing on temporality from a Husserlian

¹⁸ This argument is in line with anthropological perspectives of music that have been outlined in the previous chapter.

perspective, thus emphasising the ‘ontology of events’, in which events are seen as collages of human and non-human agents that interact and that are under-determined by context, and evidence a) retentions of the past (a presentation of a temporally extended present) and b) protentions of the future (the anticipations) adhering to Gell’s argument that:

[o]bjects that result from creative agency condense or embody social relations, and that they do so by spinning forms of connectedness across time and space. Through the art object, these social relations are distributed and dispersed both temporally and spatially. But in the process the social relations are also relayed and transformed, as are the objects themselves (Born 2005:16).

Having analysed and discussed certain examples of socially distributed objects from Gell’s *Art and Agency* (1998) (e.g. ‘Slashed Rokeby Venus, Marcel Duchamp’s work and the architecture of Maori meeting houses), Born has concluded that there are four kinds of creative agency dispersal according to Gell: a) the way that creative agency can be distributed across time, b) across space, c) the way it forges relations between persons, and d) and between subjects and objects (Born 2005:22). In this article, Born succeeds in addressing the sociological gap that was missing from Gell’s narrow anthropological perspective thus explaining better the social dimensions of creativity. In the same article, Born develops further the theory of relayed creativity, which is immanently relevant to this thesis.

The term ‘relayed creativity’ is used to describe processes of decomposition, composition, and re-composition in music by various creative agents (Born 2005:26). Music and communication technologies support such collaborative actions that can take place both in physical and digital places. Born has examined the concept of relayed creativity through various case studies. Firstly, in jazz, “the prototypical African-American music of the twentieth-century” (Born 2005:26), showing how its distributed object “condenses and relays” relations between human and non-human agents, whilst temporal and historical dimensions are in dialogue through performance (ibid 28). Secondly, she looks at South

Asian DJ subculture and its diasporic flows, and the ways in which hybrid, yet ‘Asian’-labelled music finds its way (primarily via the internet) in geographically dispersed places (ibid 29). Both examples highlight a current phenomenon that can characterise relayed creativity in music – collaborative, dispersed, and characterised by spatial and temporal dimensions.

In her article, Born has identified the similarities between Gell’s writings on the distribution and dispersion of social relations in temporal and spatial dimensions with other scholars who have discussed the significance of social dimensions of human and non-human interactions (notably Thomas 1991, Strathern 1999, and Latour 2005). I find many similarities between this theoretical and conceptual trajectory and social network analysis (SNA), which also emerges from the field of sociology. SNA first extrapolates the social dimensions to larger assemblages, extending time and space while supplementing well the core of relational sociology. In addition, SNA offers coherent, yet sometimes complex, visualisations of social relations in the form of networks and, often, using statistical analysis methods, may lead to significant conclusions with regards to sociality.¹⁹

Since 1996 Manuel Castells has discussed the ‘network society’ as a new concept of social organisation characterised by fundamental cultural transformation, where virtuality has become an essential dimension of reality (Castells 2010:loc. 369). Castells has explained the emergent new culture that is based on ‘multimodal communication’ adopted by internet users, underlining the divide with the pre-internet era. He has argued in the first edition of his seminal book, *The Rise of the Network Society* (1996), that he has conceptualised this multimodal communication “as the network society because it is made of networks in all the key dimensions of social organisation and social practice” (Castells 2010[1996]:loc. 369).

¹⁹ SNA will be further analysed in section 2.3 of this chapter.

With the expansion of digital networking technologies, these social networks have become more empowered overcoming limitations such as geographical boundaries (ibid 379). As Castells has further clarified, networking has become a social demand, be it for business networks or communication/friendship networks (ibid 507). Some of these networks are online communities that become a daily reality for internet users (ibid 593).

Castells has argued that the flows of information in networks rely on the development of localities as nodes which are primary hubs, gatekeepers of networks (Castells 2010:loc. 657). Social networks are global and in looking at the specific localities, one can understand the social transformations in spatial dimensions – a sort of protention of reality in time, to return to Husserl's concepts. Gordon and de Souza e Silva (2011) have looked extensively at the importance of locality in a networked world. In summarising their arguments, a) location provides the framework in which internet users' identity can be formed, performed, and expressed (Gordon and de Souza e Silva 2011:12), b) the global and the local are blurring in physical spaces through the perpetual connection to internet-supported networks (ibid 155), and c) localities become integrated in a global network that privileges information flows rather than places and local connections (ibid). These localities that become primary nodes in a network demonstrate which points attract "wealth, power, culture, innovation, and people, innovative or not" (Castells 2010:loc.729).

In Born's analysis, the significance of locality is expressed as the 'spatial dimension'. In bringing together the sociological with the technological terminology, the remaining conclusion is that locality, space, and place matter. This has also been prominent in anthropological literature (see Herzfeld 1991, Augé 1995, Hylland Eriksen 2001). Furthermore, Becker has also underlined the significance of locality, suggesting that "every artwork has to be some place" (Becker in Crossley 2015:38).

In returning to the introductory quote by Keislar, the sociality of music-making involves a ‘music world’, in which creativity is relayed and dispersed across a network of social ties between human and non-human agents (e.g. “musicians, musical technologies, listeners”). The social network is a dynamic structure of social relations that spreads in temporal and spatial dimensions. One such example is found in Meizel’s work, where the networked aspect of society is experienced when the digital and physical ‘American Idol worlds’ collide. As Meizel has explained, technology provides connection between the two sides of the screen in American Idol contestants who read discussions in forums and interact with the audience off-screen (Meizel 2011:40). Similar examples are found in digital ethnomusicology literature later in this chapter.

Furthermore, there are two manifestations of music as experienced in the 21st century that should be taken into account when scrutinising hybridity and cosmopolitanism. The challenging duality of the concept of ‘hybridity’ here is acknowledged, as it has been previously outlined by Stokes (2004:59). As he has explained, hybridity clashes with ideas regarding authenticity. However, as Stokes has clarified, it is worth looking at both aspects of hybridity to understand their discursive dynamics (ibid). In chipmusic, hybridity is found to operate on multiple levels of discourse, some associated with authenticity and others with differentiation. The primary aspect of musical hybridity in chipmusic, however, relates to technology – for example, the use of various music-making platforms for the composition of chiptunes – rather than the politics of diaspora, as elucidated in Stokes’ work. Secondly, as will be later discussed, musical hybridity is a pathway followed by certain chipmusicians to differentiate themselves, as a characteristic of their ethnic identities. This can be an individual expression (e.g. French chipmusicians incorporating elements of ‘Frenchness’ in their music) and collective, in the case of localised groups of chipmusicians who release an

album to raise awareness of their local chipscene, for example, ‘Russia in 8-bit’ (2013), in which there may not be any signs of musical hybridity from the particular musical culture, but elements of the culture are appropriated with the use of text/fonts, images, and symbols (in the case of ‘Russia in 8-bit’, a pixelised image of the Kremlin was used, as well as the colour scheme featured the three colours of the Russian flag).

As Born has explained, music has the capacity to shift between territories and exist in arbitrary, mutable states where relayed creativity “retains and blurs the traces and boundaries of individual and collective authorship” (Born 2005:30). The fluidity and social distribution of creativity between creators and localities is fundamental in this respect. In addition, the concept of hybridity as a trait of creativity has concerned Koestler (1964). There is common ground between Born’s theory of relayed creativity and Koestler’s theory of the act of creation in the sense that both scholars have found that creativity is produced on multiple levels (for Koestler’s argument see 1964:35-36). Koestler did not focus on the social aspects of creativity; rather, he analysed the process of creating together with the output. He employed the term ‘bisociation’ to describe the forced connection of two seemingly contradictory ideas or things that lead to a surprising, hybrid creation (Koestler 1964:45).

Secondly, the network society entangles the local and the global, providing networked connections between them (Castells 2010:loc.708). Music is a way to establish such connections. Stokes has discussed how music hybridity in a ‘global order’ evokes musical cosmopolitanism (Stokes 2004). As he has argued, “to evoke musical cosmopolitanism is to evoke a capacity of the musical imagination, and with that word ‘imagination’ certain ideas about the powers, agencies and creativities of human beings at

this point in time” (Stokes 2007).²⁰ In both manifestations of music, derived from Born and Stokes respectively, music can be a distributed object, one that has the potential to change both in time and place, influenced by societal and political changes, the ‘imaginaries of connectedness’ of geographically disconnected places as Feld has described in his experience with Jazz cosmopolitanism in Ghana (2012:50). Cosmopolitanism shapes identities: as Ryuichi Sakamoto has declared, “I don’t want to be Japanese. I want to be a citizen of the world” (Toop 1995:192). Musical cosmopolitanism embodies various perspectives on knowledge – related to music, aesthetics, society, and so on. The infinite access to this information is enabled by the internet and transforms music into an arena of performative freedom which can also enact the negotiation of difference and the need for participation.

2.2 Towards the theory of networked creativity in chipmusic

Chipmusic is inextricably related to technology practices. Returning to the ethnographic narration at the beginning of the chapter and the theorisation and conceptualisation of creativity in the previous section, here I present the concept of networked creativity. To examine a networked society that focuses on chipmusic-making, I propose the term ‘networked creativity’, which encompasses technological-hacking processes, music-making, digital processes involved to chipmusic distribution, and social aspects of networking when arranging performances, crowdsourcing campaigns, and any other activity related to chipmusic production and consumption in physical and digital places. Networked creativity is built upon Born’s theory of relayed creativity, with the addition of four elements that are characteristic of creativity in chipmusic worlds: cosmopolitanism, bisociation, imitation, and copyright complexities.

²⁰ Stokes distinguishes between two kinds of musical cosmopolitanism, “of the relatively powerful and the relatively powerless (Stokes 2004:61). Musical cosmopolitanism can reveal political and social discursive patterns in a society that bear different meanings regarding musical creativity.

Firstly, creativity in chipmusic is found on multiple levels. The first encompasses technology-hacking practices, the preparation of the appropriate hardware and software, which signals the relationship between the technical processes, or, as Gell would put it, the technology of enchantment (Gell 1992). In certain aspects of this part, there is a sense of magic that enchants chipmusicians. More often, this magic is experienced through the ritual blow on the Nintendo Game Boy cartridge prior to placing it in the slot. Although there is no evidence that blowing on the cartridge will make the software work the first time avoiding any glitches, it is a shared belief that blowing on it will make the cartridge work properly. And thus, it becomes a common practice, as taught knowledge, that this is what one should do prior to switching on a Game Boy.

Secondly, music-making processes and practices are also to be labelled creative. These include music-making from scratch, remixing, sampling, applying filters, emulating sound chips, and any other technique used for manipulating sound. It is important to note that, in some cases, the initial music-making stage may be an individual activity, i.e. one chipmusician composes a chiptune, but it can also be collaborative. In both cases, however, the chiptune can be a distributed object, in Gell's terms, which can be further altered by other agents, in different temporalities and spatialities. The collective action for the production of a chiptune is not reducible to individual creativity as it presupposes interaction, stimulation, and influence that comes from various social agents. This is a form of collective creativity which Durkheim (1974) has called 'collective effervescence'. This phenomenon is also found in other music worlds, as for example in the case of punk (Crossley 2015:80).

Furthermore, activities related to the social aspect of music are also deemed to extend into chipmusic creativity. For example, distribution of chiptunes in the chipscene network

through online communities, social media, netlabels, and, also, organisation of crowdfunding campaigns to raise funds for chipmusic productions, arrangements for performances in digital and physical places and all other related digital cultural practices, all of which will be clarified in the forthcoming chapters. In the ‘chipmusic world’, to paraphrase Becker, there is some division of labour. For instance, certain agents function primarily as event organisers – although they may also be chipmusicians. Others, are keen journalists who write chiptune reviews in online communities. However, it is significant to clarify that the chipscene is primarily a prosumer culture (production and consumption, see Ritzer and Jurgenson 2010) which suggests that firstly, it is self-sustained (financially, socially, and so on) and secondly, that chipmusic is usually consumed by other chipmusicians.

Born has distinguished two aspects of the social distribution of creative agency (Born 2005:25). In chipmusic, both aspects are observed. Firstly, the changing social ties between chipmusicians and other chip-related social agents (listeners, audiences, producers, and event organisers, for instance). Building on Gell’s work, the relayed nature of creativity presupposes a ‘communicative relatedness’, the anticipation of social connections, as Born has explained (ibid). Second, Born argues for a collaborative form of musical authorship, stressing the impact of digital and internet technologies on the acceleration, mobility, and dispersion of creativity (ibid). This is also true in chipmusic creativity, given that chiptunes are distributed over the internet, and one can have access to them in real-time regardless of geographical location.

There are four other aspects of creativity in the chipscene network that have not yet been presented: a) its cosmopolitan character, b) the temporal dimension of its bisociation, c) creative imitation, and d) the legal protection of chipmusic creativity.

Firstly, the chipscene network is both transnational and digital, as has been previously argued. Chipmusic cosmopolitanism is manifested in various ways – through stylistic hybridity, aesthetic discrepancies, geographical dispersion, and negotiation of difference, to name a few. To examine the societal aspects of creativity in chipmusic world, I turn towards the close examination of social relations between human and non-human agents employing the method of social network analysis (SNA, see Borgatti et al. 2013). Becker’s theory of art worlds has been largely employed by relational sociologists that use SNA in music (see for example, Watson 2012, O’ Shea 2012, Crossley 2015, Millward et al. 2015). Crossley has explained that “the existence of a network is an essential precondition for the emergence of a music world” (Crossley 2015:14). Furthermore, a music world relies on collective action by networked agents (connected to one another) who share interests, commitments, and resources (ibid). The chipscene network presents a significant challenge in terms of its size. Unlike the cases examined by other scholars, where the networks were manageable in size of participants, I have considered all chipmusicians that have been active in the period I conducted fieldwork. This is because I did not focus on a particular geographical location but aimed at a comparative network. The network participants amount to more than one thousand agents with thousands of connections with one another. Overall, the collected data are highly contextualised. Given the cosmopolitan aspect of chipmusic, I grouped the social agents in countries instead of opting to show them as individuals in the network. Using geography as the organisational logic of the networked characteristic of chipmusic, I depict the social ties of chipmusicians in the form of geographical clusters, that become the network’s nodes.²¹

²¹ For the developed methodology using SNA as well as the reasons for the selection of Gephi, the visualisation software used for the social network, see chapter three.

Secondly, bisociation in chipmusic at various temporal dimensions provide different layers of meaning with respect to what is creative and what is not. In the early days of the chipscene, the innovation of chipmusic composed on early home computers and videogame consoles lay in the bisociation of two seemingly dissimilar concepts: 8-bit computer technology and music-making. With the invention of emulators, the bisociative act changed. Chipmusic could be composed on modern computers, which was significantly diverged from the idea of using 1980s platforms. This type of chipmusic, however, was based on two of the original principles: firstly, emulators were copying only 8-bit soundchips, and secondly, since mimicry of chipmusic aesthetics was sought after, few channels were used for music-making. However, this changed again, offering further creative opportunities beyond 8-bit sound. Thus, from a historical perspective of creativity, chipmusic-making shifted from a) heavy, obsolete technology, to b) mobile obsolete devices, and finally, to c) contemporary computers.

The expression of the creative process of chipmusic across various temporal dimensions reflects Liep's argument that creativity is transformed by tweaks. Toynbee extends this view by suggesting that due to the volatile character of popular music, there is a certain point in the lifespan of a musical culture when redundancy sets in, followed by a bending of the initial rules (Toynbee 2012:168). In chipmusic, the golden rule that dictated a "Fuck ProTools" ideology (see McLaren 2003, Yabsley 2006, Carlsson 2008a, and Pasdzierny 2012) was broken, and ironically, most soundchip emulators today are compatible with ProTools. Chipmusic which is composed using such soundchip emulators is named 'fakebit'. This is primarily to distinguish modern computer-mediated chipmusic from that composed on the original 1980s platforms, suggesting that fakebit is inauthentic, and thus assigning a derogatory meaning to it. These social changes regarding chipmusic creativity have affected the chipscene network in different temporalities and spatialities. For

example, chipmusicians in Indonesia have endorsed fakebit without any reservations, whereas the first generation of chipmusicians, were rather sceptical regarding the innovative character of fakebit.

Thirdly, one of the aspects that have not been discussed so far but is diffused in the ethnographic narrative at the beginning of this chapter, is the learning process of chipmusic. Morusque's observation was, in effect, an educational exercise. His purpose was to teach me how to compose chipmusic using LSDJ. The internet is a rich educational source for chipmusic-making and involves copying techniques to learn basic structures prior to improvising. Hallam and Ingold connect creativity to improvisation, arguing that, on the one hand, creativity presupposes pre-design of the action to a certain extent, and from a rather Tardean perspective, creativity encompasses the process of copying (2007:2). On the other hand, given the numerous and often extreme possibilities in a world of ubiquitous creativity, improvisation is inevitable. As they have highlighted:

people are compelled to improvise, not because they are operating on the inside of an already established body of convention, but because no system of codes...can anticipate every possible circumstance...the improvisational creativity of which we speak is that of a world always in the making. (ibid 5, 2-3)

For Hallam and Ingold, the temporal dimension of improvisation is characterised by a continuous progress of the past that guides the improvisation, but does not shape it entirely. Therefore, the future is entirely unanticipated (ibid 10-11). Perhaps a protention, to re-cite Husserl, in which the past is somehow identified but not clearly stated in the future creation, which in some respects may fail to become an innovative protention, as Born has argued (2005:23), and for which one needs to be sceptical about.

The process of learning in several cultures is conducted by copying – or even more appropriately, by reproducing – actions that are experienced within the particular group. As

Hood explains, “[i]n the early phase of training, traditional methods of imitation and role learning are far more rewarding in both time and retention than the usage of notation” (Hood 1960:56). This is also observed by other ethnomusicologists (see for example Blacking 1967:33, Cottrell 2007:87). Thus, copying the tutor aims at becoming like them in terms of achievement and knowledge. Creativity in this sense can be taught. This point resonates with Bateson’s (1972) theory of deutero-learning, suggesting that creation, imitation, and performance meet as processes in a context of improvised, Gestalt learning.

The last area related to creativity that is examined in this thesis is intellectual property and copyright. Chipmusic as a distributed object can become subject to exploitation. After a number of cases of copyright infringement following the popularisation of chipmusic in the 2000s, online circulation of chipmusic, aiming to recognise creators and also protect their legal rights, changed in three major ways: a) by the use of online licences such as Creative Commons, b) through chipmusicians refraining from uploading their music online to avoid musical plagiarism, and c) by chipmusic circulation occurring only on online stores and promoting platforms, such as Bandcamp, and iTunes. At a time when all digital music is potentially available to anyone online, it is evident that the internet shapes creativity, as Lessig (2002) has argued.

In this thesis, the problematic concepts of copyright and intellectual property are examined from an ethnographic perspective as in the work of Coombe (1998). I primarily analyse the court case of ‘Acidjazzed Evening’, a distributed object in chipmusic which was created by Tempest, remixed by Gallefoss, and has been allegedly plagiarised by Timbaland. Copyright poses various challenges to chipmusic. One can find such examples in several domains of chipmusic practice: a) appropriation and ‘creative exploitation’ in Frith’s words (Frith 1993:13) of pop songs and their 8-bit covers whether they are licenced and legal or

unlicensed – as often happens during live performances, b) misappropriation of original chiptunes by mainstream media or artists (copyright infringement) by means of copying or sampling, c) geographical challenges of copyright legislation, and d) legal gaps in relation to open computer music files, such as .mod, which can be manipulated and edited, characterising them as performances rather than concrete, finished musical pieces.²² How are chipmusicians dealing with such situations? In this type of alternative economy is intellectual property a catalyst of cultural production?

Having clarified the theoretical and conceptual framework of networked creativity in this thesis, in the next section I move on to the critical discussion of social networks and social network analysis.

2.3 Social Networks and Social Network Analysis (SNA)

The theory of networks – the network society as described in the previous section based on Castells' concept (2010) – and social network analysis (SNA) are key concepts in the examination of creativity in this thesis. This section aims at clarifying the historical and conceptual context of social networks and SNA.

Networks were introduced as conceptual frameworks in the social sciences to examine the fluid and changing relations among agents that belong in a social order (Goriunova 2012:8). For this in particular, Latour's Actor-Network Theory has been primarily insightful as it targets societal processes that do not need to be hosted in a closed environment, such as an organisation or an institution (ibid). Scott, however, has argued that

²² For example, the 8-bit version of Miles Davis' "Kind of blue" (1959) entitled "Kind of Bloop" (2009). For this, see chapter seven in this thesis.

social network analysis has been primarily influenced by the conceptualisation of ‘social structure’ by the anthropologist Radcliffe-Brown, who used metaphors such as ‘fabric’ and ‘web’ to explore social life (Scott 2013:1). At the same time in history, Malinowski, looked at the ring of Kula as a “network of relationships...that forms one interwoven fabric” and discussed how tangible and intangible objects of material culture travelled along this network where homophily, to use the term of SNA that describes similarity, was found in the passion for Kula exchange (Malinowski 1922:92). Similarly, one finds concepts of networks in Lévi-Strauss’s work, who applied a structural framework to understand relationships between groups of people (1962), and Geertz and his ‘semiotic web’ in which humans are caught, extending Weber’s concept (Geertz 1977:5).

The term ‘social network’ was introduced in anthropology by Barnes in 1954 (Mitchell 1974:279), whose argument was that the social network displays social ties of people in any society as well as the ways in which these ties are intertwined (ibid 280). Although a number of anthropologists at the time discussed social networks in their ethnographies (Bott 1957, Barnes 1954, Mayer 1961, Hannerz 1967, Epstein 1969), most of these studies were behavioural-oriented and within the framework of structural-functionalism (Mitchell 1974:285). As Mitchell has explained, this was a paradox as anthropologists used social networks to escape structural-functionalism, but instead, they adapted the framework to the study of social networks – except for Boissevain (1973) who adopted a structural approach deviating from issues regarding norm consensus and the control of deviant behaviour and focussed on social ties, personality, and behaviour in the network (Mitchell 1974:286). The Manchester School (associated with Max Gluckman and Mitchell, Barnes, Bott) was prominent in the implementation of social networks in ethnographic contexts. Today the Manchester School of Social Sciences and more

specifically, the Mitchell Centre for Social Network Analysis, is one of the most active research hubs of social networks research.

Radcliffe-Brown has differentiated the role of sociologists – who study social relations – and the role of social anthropologists who study social relations that belong in a “wide network of social relations, involving other persons” (Radcliffe-Brown 1940:3). His interest with regards to social networks was inextricably related with common themes of research in anthropology at the time, as for example, kinship and social class (ibid) – not deviating from the model explained by Mitchell 1974. Radcliffe-Brown has raised the significant point of continuity of social structure through time, highlighting its dynamic character (ibid 4): “Throughout the life of an organism its structure is being constantly renewed; and similarly the social life constantly renews the social structure” (ibid). However, as he has argued, the spatial aspect of social structure at the time revealed an issue regarding continuity: “the network of social relations spreads over the whole world, without any absolute solution of continuity anywhere” (ibid). And this realisation has led to his criticism of sociologists who had not given an accurate definition of ‘society’ at the time.

These are very interesting theoretical challenges particularly when examined from the perspective of current times when the internet has affected social ties and relationships, and by extension, society. Castells has addressed many continuities in his work of the network society (for example, the continuity of innovation and industrialisation in the Information age, Castells 2010:loc.9973). A central characteristic of the network society is what Rainie and Wellman have called ‘networked individualism’ (Rainie and Wellman 2012:loc.343). Networked individuals have the power to reach extended audiences who become part of their social worlds (ibid 488). As the authors have argued, the triplet of social network, internet and mobile revolutions have managed to “shift people’s social lives away

from densely knit family, neighbourhood, and group relationships toward more far-flung, less tight, more diverse personal networks” (ibid 432).

The initial problem in the conceptualisation of networks in the 1950s was firstly, the adjustment methodology that could not be escaped as the field of social network analysis had not yet been developed. Moreover, social networks were adapted to fit the needs of anthropologists. As Mitchell has argued, networks were conceptualised to fit small-scale societies, which fieldworkers researched (Mitchell 1974:281). Given this knowledge, Radcliffe-Brown’s criticism and wariness was to be expected. However, the development of the theory of social networks as well as its methodology, social network analysis, have shed light on how networks can address these issues today.

The idea of networks promotes asymmetry and provides a differentiated perspective on temporal and spatial linearity. Social ties navigate in networks; one can trace linear actions (an individual giving advice to another, who passes on advice to a third agent) but also multimodal, that can be circular, linear, open, closed, and so on. Although the spatial expansion of society into the networked world can maximise the complexity of its social study, at the same time it enables the research of continuities in various temporal and spatial dimensions. For example, religious practices in Greece can be examined in a network of social agents that can be built up by various scholars across time. The network at any given point will show the continuity of these practices in Greece and beyond, in the case of individuals who live elsewhere but are socially connected via the internet with other individuals who have this ‘homophily’. In this network, time and space are attributes that can be used to interpret the network. Time can even be divided in the past (previous research conducted on the topic), present (current research), and make projections into the future based on the ‘predictions’ that SNA can produce (a sort of mathematical modelling of

prediction of social ties). As Bott (1957) has argued some sixty years ago, “there is nothing revolutionary about the idea of social network” (Bott in Mitchell 1974:282). However, today there are revolutionary methods to understand and analyse social networks and can lead to significant findings about large societies across time.

Networks describe data such as types of relations that can be of friendship, kinship, acquaintanceship, advice giving, and communication to mention few (Borgatti et al. 2013:3). Network theory as known today has developed from graph theory, an area in applied mathematics that looks at the connections between objects (Newman 2011). One way to conceptualise visually a network from a mathematical approach is as graph (Borgatti et al. 2013:11). A graph represents vertices (which are called nodes) and edges, the ties between them (Newman 2011, Borgatti et al. 2013:11, Crossley 2015:14). The number of edges attached to a node is called the ‘degree’ of that node (Borgatti et al. 2013:11). Graphs can be directed or undirected. Directed relations depict relational phenomena in which direction is significant (for example, one giving advice to another person). In undirected graphs, direction either does not matter or the relation is expected to be reciprocated (ibid 12). In addition, network data can be one-mode that describe a set of grouped nodes and their social ties, and two-mode, that looks at two distinct groups (ibid 248).

There is a selection of SNA software to choose from. For complex, two-node networks, UCINET and Pajek are most suitable. For one-mode networks and large datasets, Gephi (v. 0.8.2) is preferred due to its simple workspace, speed in visualising and analysing the network, simplicity in uploading datasets and editing node attributes, but also due to its selection of layout algorithms and statistical methods. In addition, Gephi is free and open source software. It should be noted that there is no trade-off between accuracy and simplicity in Gephi. In my attempt to explore other SNA methods I used the package NetworkX that is

based in Python programming. The process was much more complicated: compiling the dataset, writing code to open, plot, and analyse the data. However, the results were the same. The limitations I encountered in Gephi were to be expected: certain glitches that required re-running the layout algorithm and the program.

This section marks the end of the theorisation and conceptualisation of networked creativity in chipmusic. The following section consists of a review of previous chipmusic literature aiming to see which theoretical themes have emerged in chipmusic research.

2.4 Reviewing previous literature on chipmusic

In recent years, chipmusic has gathered a momentum as a research area. The earliest sources on chiptunes are found in the literature on demoscene. Most studies focus on the experiences of demosceners in diverse European countries, and more specifically, Scandinavia and Central Europe. Demoscene literature comprises university essays, academic papers published in digital media and printed journals, as well as conference proceedings and magazine articles. Reunanen and Silvast maintain a list of references on the website *Demoscene Research*, which they regularly update.²³ Finnish scholars appear to be predominantly interested in the demoscene as a research topic (see the above webpage for such examples), and their publications are primarily in Finnish, which is a significant limitation for international researchers. In this section, I focus on certain key publications in English and German.

²³ The list can be found on <http://www.kameli.net/demoresearch2/?page_id=4> accessed 24/11/14.

Reunanen has published a number of works on the demoscene. His thesis entitled *Computer Demos – what makes them tick?* (2010) provides an insight into demoscene practices from a cultural perspective. He looks at the history of the demoscene and classifies the hardware employed by demosceners. Reunanen's thesis is rather informational from a historical perspective, but it does not offer an in depth analysis on demosceners' intentions. In 2009, Silvast and Reunanen published an extensive article on home computers, which is one of my primary sources in chapter five, when writing on the cultural biographies of chipmusic platforms. In their study, Silvast and Reunanen centred on creative processes, as well as how demosceners viewed new hybrid means of creation and reacted to change. However, the authors tend to be rather descriptive of events and situations, without analysing the deeply-rooted issues related to the creative process that are central in my thesis.

There are three books written on the demoscene. Tasajärvi edited the volume *Demoscene: The Art of Real-Time* (2004). In this volume, one will find an introduction to the demoscene, an overview of trackers, and an analysis on one of the largest demoparties, The Gathering. In addition, the writers analyse diverse demos. Secondly, Polgár published *Freax: The brief history of the demoscene* (2005), with an aim to analyse in detail the diverse sub-scenes within the demoscene, such as the Amiga and Commodore scene. Although there is a fair amount of primary sources, such as demo screenshots, interviews, and reviews of significant demos and demoparties, *Freax* lacks citations. Polgár rarely mentions his sources and, as Reunanen and Silvast assessed in the *Demoscene Research* website, the boundaries between facts and gossip are often blurred in the book. However, the most significant input is Polgár's analysis of the East European demoscene, an area which has not been extensively looked at to date.

The third book on the demoscene is written by Botz and is published in German, based on his doctoral thesis. In *Kunst, Code und Maschine – Die Ästhetik der Computer-Demoszene* (2011), Botz analyses the demoscene and demos with an aesthetic perspective. The first part of the book sets the basic concepts of the demoscene (platforms, sub-scenes, methods of creation) and the second part centres on the aesthetic strategies and the aesthetics of hardware. Botz situates his theory in technological values of the demosceners, as well as hacker ethics, a perspective which has also been employed in this thesis, particularly in chapters four and eight. This is a rather insightful read, but lacks any mention of chipmusic and its given culture.

In addition to the aforementioned publications, it is worth mentioning that a number of writings on the demoscene are also available online, in online communities and Wikipedia.²⁴ Considering that it is mainly demoscene practitioners who generate content on demos and the demoscene, the aforementioned sources provide useful material related to history and the technical aspects of the demoscene. This material is usually moderated by online community administrators. In the case of Wikipedia, I have been asked by another fellow chipmusic researcher and chipmusic practitioner, to contribute to the “Chiptunes” page. It appears that although Wikipedia is open for editing by any internet user, there are certain people who overview edits. When I interviewed chipmusicians, they mostly referred to online sources as their primary learning tool that initiated them in the demoscene or the chipscene. For the particular cultures, then, user-generated content sites are particularly important.

Previous literature on demoscene practices clarifies creative processes, particularly in relation to tracker software and specific platforms. Although demoscene researchers

²⁴ See, for example, Pouet.net, Demoscene.info, and the Demoscene page on Wikipedia <<http://en.wikipedia.org/wiki/Demoscene>> accessed 24/11/14.

mention in their work chiptunes as the musical counterpart of demos, they quickly dismiss any extensive discussions on chipmusic. The reason behind this is that chipmusic is not their primary interest. However, there are certain researchers who have taken on the task of expanding the literature on chipmusic.

Similarly to demoscene publications, chipmusic research is disseminated in the form of published articles on the Internet and in academic journals, conference proceedings, university essays, and online content. Texts on chipmusic can be divided in two categories based on the writer's viewing angle: a) technical texts, b) historical and sociocultural accounts of chipmusic. This classification is not strict; rather, it aims at highlighting diverse perspectives on chipmusic. Certain researchers provide information that can be related to two or all three of the above perspectives, but their primary aim is to centre on one task, i.e. explain the technical characteristics of soundchips, or discuss the social aspects of the chipscene.

Technical publications are primarily authored by chipmusic practitioners. Tomczak has written two pieces. His conference paper 'Authenticity and Emulation: Chiptune in the Early Twenty-First Century', published at the International Computer Music Conference, (24-29 August, 2008), centres on highlighting the technical differences between chipmusic produced on original platforms and soundchip emulators. In this paper, Tomczak makes very few, but significant, observations on the fact that authenticity in chipmusic is a social phenomenon rather than an attribute of chipmusic (Tomczak 2008).²⁵ Furthermore, Tomczak has written a doctoral dissertation *On the Development of an Interface Framework in Chipmusic: Theoretical Context, Case Studies, and Creative Outcomes* (2011). In his thesis, he describes how he built hardware interfaces for diverse videogame consoles, such as the

²⁵ This view is extended in this thesis in chapter eight.

Atari 2600 and the Sega Master System, repurposing them as musical instruments. Tomczak analyses extensively the technical properties of soundchips in early home computers and videogame consoles.²⁶

In the same category, one finds three more texts. Dittbrenner's thesis, which was published in German as *Soundchip-Musik. Computer- und Videospielmusik von 1977-1994* (2007), is an extensive analysis of soundchips of early home computers and videogame consoles of that period. In addition, Dittbrenner examines composing techniques and tricks that were employed to bypass the technological constraints of the soundchips. Furthermore, he also looks at chipmusic as popular culture, particularly analysing chiptune subgenre formations. Secondly, Kotlinski's 'Amiga music programs 1986-1995' (2009) is a short unpublished paper that centres on the use of early home computers in Europe for means of music-making in the demoscene, and more particularly, outlines the technical aspects of various tracking software on Amiga computers. Finally, Phelps has written a detailed and highly complex technical project report, as part of his undergraduate studies, entitled 'A Modern Implementation of Chiptune Synthesis' (2009). This project clarifies all the technical aspects of soundchips as well as software structures. In addition, Phelps has designed various software modules in Max/MSP environment, recreating software synthesisers.

In terms of historical perspectives on chipmusic, Malcolm McLaren (2003), has written an article in *Wire* magazine on the "8-bit punk" movement, which he claims to have discovered. This reflects his brief experience in the chipscene, presenting chipmusicians as penniless outcasts who recycle obsolete consoles to make music. For chipmusicians, McLaren failed to understand chipmusic culture and exploited it to get personal publicity.

²⁶ Some of the technical information on soundchips found in chapter five are based on Tomczak's findings.

McLaren's article triggered various discussions in online communities, and as a result, a representative of an online community posted a public letter in response to the Wire article, attempting to re-instate chipmusic doxa.²⁷ Although McLaren's article is not particularly interesting for an informed audience, it helped the chipscene gain in popularity.

One of the most cited historical references on chipmusic is Driscoll and Diaz' article 'Endless loop: a brief history of chiptunes' (2009). In their article, the authors criticise McLaren's view on chipmusic, and attempt to reveal the world of chiptunes in a rather academic manner. This is one of the first academic pieces that clarifies terminology, history of the chipscene, the relation of chiptunes to videogame music, some of the technical aspects of soundchips, and 8-bit aesthetic. Although it provides what it suggests, i.e. a concise history of chiptunes, it fails in analysing in detail the above topics. Additionally, Ramocki's article 'DIY: The Militant Embrace of Technology' (2008) is also a work cited often, in which chipmusic is seen as an intrinsic part of hacker culture. This argument, however, is monolithic and does not depict the chipscene's cultural diversity.

Currently, there are few books that discuss chipmusic historically and/or sociologically. There is, however, one book entitled *Chiptune* (2009), published by Alphascript Publishing, a company that scrapes Wikipedia content and, without any editing at all, publishes it as edited volumes at a high price (\$50-80). It is clearly stated that all content is extracted from Wikipedia, and more specifically, from the "Chiptune" Wiki page. I have not seen this book on the market for many years, and I found there is a lawsuit against the company, which has not been resolved yet.

²⁷ For this incident, see further in chapter four.

Nova's *8-bit Reggae: Collision and Creolization* (2014) examines 8-bit reggae, a subgenre of chipmusic. In his book, Nova introduces the reader to chipmusic values, briefly outlining five generations based on the account of Dubmood, who is a chipmusician. Then, he centres on the analysis of 8-bit reggae, presenting it as a hybrid genre which came to existence as a result of the passion for reggae and 8-bit aesthetic. Nova also describes the creative process, suggesting that both genres are based on low-level economies, i.e. their composers use whichever materials are cheap and available. Nova makes a significant contribution to chipmusic literature, but does not succeed in creating a solid theoretical and methodological backbone to present chipmusic as culture. Rather, his aim is to discuss 8-bit reggae by juxtaposing chipmusicians' perspectives.

Karen Collins makes various references to chipmusic and the chipscene in her work. She has published two monographs on videogame sound – *Game Sound: an Introduction to History, Theory, and Practice of Video Game Music Sound* (2008b), and *Playing with Sound: a Theory of Interacting with Sound and Music in Video Games* (2013). In her work, she acknowledges the difference between videogame music and chipmusic, stating that for both kinds the same hardware is used. In addition, she edited the volume *From Pac-Man to Pop Music* (2008), in which Anders Carlsson wrote an article on chipmusic, as explained later in this chapter. Furthermore, Collins refers to chiptunes in some of her articles. For example, 'In the loop: Creativity and Constraint in 8-bit Video Game Audio' (2008a) mentions certain composing techniques in chipmusic.

Another author that looks at chipmusic from a cultural perspective is Pasdzierny. In his article (2012) he aims at examining live chipmusic. Although the initial aim is interesting, Pasdzierny does not define 'liveness' in the context of the chipscene, which is rather

important considering that part of ‘live’ chipmusic is, in fact, pre-recorded.²⁸ However, the author clarifies the generational gap in the chipscene, as well as the changes in the intentions of chipmusicians.

The *Cambridge Companion to Electronic Music* (2007), edited by Collins and d’Escriván, includes two sections that are entitled “Artists’ statements”. In the second one, Bubblyfish, who is also one of my informants, recounts her experience in the chipscene. In her narrative, she describes her local scene, in New York, and also outlines the transnational character of the chipscene in various countries. In addition, she discusses the chipmusic-making tools and clarifies her own intentions as well as certain shared aims that other chipmusicians have. However, Bubblyfish recites early home computers and videogame consoles as chipmusic-making platforms only, and does not present the ways in which chipmusic can be composed on modern computers.

Tonelli in his article ‘The Chiptuning of the World: Game Boys, Imagined Travel, and Musical Meaning’ (2014), focusses on mobility, which is also the theme of the edited volume his work is published in.²⁹ He examines mobility in chipmusic practices, considering that several chipmusicians use the portable gaming console Nintendo Game Boy to compose chipmusic. Tonelli successfully presents the transnational character of chipmusic and the chipscene, an aspect that has not previously been clarified in chipmusic literature.³⁰ Part of the article is based on material from a section of his doctoral thesis *Musical Pastiche, Embodiment, and Intersubjectivity: Listening in the Second Degree* (2011).

²⁸ Chapter six in this thesis centres on performance in chipmusic and clarifies further this point.

²⁹ Tonelli’s article is part of the edited volume *The Oxford Handbook of Mobile Music Studies Volume 2* (2014), edited by Stanyek and Gopinath.

³⁰ In this thesis, I define the chipscene as a transnational network, understanding ‘transnationalism’ as explained by Kearney: “Transnationalism overlaps globalisation but typically has a more limited purview. Whereas global processes are largely decentred from specific national territories and take place in a global space, transnational processes are anchored in and transcend one or more nation-states” (Kearney 1995:218). The transnational aspect of chipmusic regarding its production and circulation is explained in chapter four of this thesis.

The Sound of Playing: A Study into the Music and Culture of Chiptunes (2007) is an undergraduate thesis that examines chipmusic and the chipscene. In his work, Yabsley underlines the importance of ethnography for elucidating the various layers of meaning ascribed to chipmusic, based on a study on the Mod Scene previously published on by Lysloff (2003).³¹ Yabsley's remark cannot be supported in his thesis, which is a small-scale research project written for the purposes of his undergraduate degree. However, he points out significant questions regarding chipmusic ideology across the chipscene.

Goriunova has also made references to chipmusic, and more specifically, the online community Micromusic.net in her book *Art Platforms and Cultural Production On The Internet* (2012). She is primarily interested in the social aspects of art platforms, which she views as networks of websites, human-technical objects, and social relations that are central in cultural and artistic practices (Goriunova 2012:2). In her book, she analyses a number of internet-based case studies, one of which is Micromusic.net. Although her work is not ethnographically-informed, she utilises theories that stem from the literature of sociology (e.g. Latour's Actor-Network theory and Weber's social organisation theory) to analyse artistic production.

One of the most significant chipmusic researchers is Anders Carlsson.³² He has published various articles on chipmusic and the chipscene, and maintains the blog *Chipflip*, in which he writes often on chipmusic. *Chipflip* is a rich source of information, not only

³¹ Lysloff's study also mentions chiptunes. However, the most significant weakness of this work is that the author positions the researched musical cultures in the virtual sphere only, failing to see the cross-cultural implications of the digital scenes he looks at. Furthermore, Ferreira has written the article 'The Arpeggio of Fragmentation: Musical Bricolage Ideology in the Tracker Scene' (2014), in which he mentions chiptunes as a subgroup of tracker music. Despite the fact that Ferreira's article is methodologically outdated as it deals with cyberstudies, echoing 1990s critical theory, he observes the importance of ideology in terms of chip-related music-making.

³² While conducting fieldwork, Carlsson became one of my key informants (see chapter three).

because it provides details on actual events, but also because it encourages user interaction in the form of comments.³³ Carlsson's graduate thesis *Power Users and Retro Puppets: a Critical Study of the Methods and Motivations in Chipmusic* (2010), his article in Karen Collins' edited volume, as well as his various conference papers and essays, present the multifaceted aspect of the chipscene as well as the diversity of discourses found in chipmusic. Three of the most significant contributions he makes are a) the power relations between chipmusicians, b) the debate on chipmusic as genre, and c) the argument that the chipscene should be seen as a social network rather than a community. In addition, he overviews issues related to intellectual property in chipmusic practices. Carlsson's results are based on short surveys he conducted, as well as on his own observations as a practitioner. Hence, to a certain extent, there is an apparent bias.

Zeilinger has authored two pieces on intellectual property and copyright issues in chipmusic. More particularly, in 'Chiptuning Intellectual Property: Digital Culture between Creative Commons and Moral Economy' (2012), he examines problems related to chipmusic circulation online, as well as the effectiveness of Creative Commons licences for creative works disseminated on the Internet. In his most recent article, 'Chipmusic, Out of Tune: Crystal Castles and the Misappropriation of Creative Commons-Licensed Music' (2013), he analyses the case of the Canadian band Crystal Castles, who plagiarised chiptunes, outlining the impact of this act on the chipscene. Both articles address readers who are proficient in legal vocabulary.

In addition to published literature, there are some conference papers presented by researchers such as Applegate (2011), D'Errico (2012), Mitchell and Clark (2007), and Roberts (2014), who discuss chipmusic from a cultural perspective. Some of these works are

³³ For example, see chapter four in this thesis regarding drama in the chipscene, or chapter seven on the subject of music plagiarism. In both cases, I gathered some information from *Chipflip*.

available to read online. However, presenting an academic paper on chipmusic is rather challenging, considering that one needs to spend time in making an introduction to chipmusic and the chipscene, as academic audiences are not yet familiar with either of them. For this reason, conference papers are not as analytical as one would expect. Furthermore, other published material on chipmusic can be found in foreign languages; for example, there are certain publications in German (Krättli 2013 and see also Dittbrenner 2007), Finnish (Karila 2013), and Spanish (Márquez 2012). These works aim at familiarising non-English-speaking audiences with chipmusic.

2.5 Ethnographic perspectives on networked publics and electronic music

In this last section of my literature review, I aim to outline literature related to ethnographic perspectives on various kinds of electronic music as well as networked musicians.³⁴ My aim here is to review critically ethnomusicological and anthropological studies of electronic music, and to examine themes similar to the ones I scrutinise in my thesis.

There are certain challenges to consider when examining chipmusic under the scope of musicology. On one level, chipmusic can be seen from the perspective of popular music studies; as previously explained in this chapter, the chipscene is a prosumer culture (Ritzer and Jurgenson 2010), in which the roles of the audience and the creator coincide. In that context, chipmusic audiences and creators become the primary meaning-making agents.³⁵ On a second level, chipmusic is indubitably a kind of electronic music, as it is produced with the aid of electronic equipment. Thirdly, chipmusic can also be categorised as computer

³⁴ Hugill has specifically classified ‘chiptune’ under the general ‘electronic dance music’ genre, and furthermore, ‘downtempo/IDM’ (Intelligent Dance Music) (Hugill 2008:158).

³⁵ I analyse extensively my point on chipmusic as prosumer culture in chapters four and seven.

music, considering that chipmusicians employ early or modern home computers for its creation. However, these are not the only means of chipmusic-making, as will be further explained in chapter five. Chipmusicians also repurpose videogame consoles and transform them into musical instruments on which they compose and perform. Depending on one's viewpoint, chipmusic can be examined as all of the above categories.

In this thesis, I refer to early home computers, videogame consoles, and modern computers as platforms. Bogost and Montfort introduced the term 'platform studies' to examine computational creativity as expressed through the use of computers, digital media, circuits, chips, and videogame consoles (Bogost and Montfort 2009:1-2). The authors have suggested that platform studies "investigate the relationships between platforms – the hardware and software design of standardised computing systems – and influential creative works that have been produced on those platforms" (ibid 2). In their first publication, *Racing the Beam* (2009), the authors discuss how the technological constraints of the Atari VCS provide opportunities for the creative process (ibid 140). This resonates with Krapp's perspective that "digital culture taps reservoirs of creative expression under the conditions of networked computing" particularly through "the limitations and closures of computing culture" (Krapp 2011:ix-x). Although Bogost and Montfort's approach is significant in recognising the importance of 'outdated' platforms for various computer/digital cultures globally, they do not propose a specific methodology of how to research the creative process in platforms.

Anthropological perspectives can address this gap, by looking at the ways in which meaning is produced and negotiated in relevant cultures. By examining discursive patterns and power dynamics, anthropologists understand social stratification cross-culturally. In the fields of anthropology (see, for example, Cheater 1999, Lem and Leach 2002) and

ethnomusicology (Nettl 2005, Stokes 1994), meaning, discourse, and power emerge as central areas of study.

Sociological methodologies were predominantly incorporated in internet cultures research. More specifically, in media studies, scholars developed a significant body of literature in the 1990s (for example, Jones 1998, Kollock 1999). Although these studies have set the foundations for internet research, they tend to be nearer literature or philosophical notions of cyberspace (for example, Haraway 1993) construing the internet as “the information superhighway” (Negroponte 1995). These perspectives generally fail to address issues such as the problematic of ‘community’ and ‘field’ which anthropology has extensively analysed. From the point of view of anthropology, the field of online ethnography has been recently developed (Miller and Slater 2001, Hine 2000, Landzelius 2006, Markham 2008, and Boellstorff 2010), addressing such gaps, but ethnographic perspectives on the synchronous interaction in digital and physical places are still at embryonic stage.

In the last fifteen years, certain anthropologists turned to the examination of internet cultures. Boellstorff et al. (2012) disclose that online ethnographers are interested in the ordinary characteristics of ‘virtual’ worlds rather than their dissimilarities, and they aim at researching individuals in a group and also, internet collectives. Their purpose is to analyse, comparatively, cultural forms online and offline: “(ethnographers study) [...] virtual worlds as valid venues for cultural practice, seeking to understand both how they resemble and how they differ from other forms of culture” (Boellstorff et al. 2012:1). Online ethnographies are not different from other types of ethnography. What differentiates digital and physical

fieldwork is: a) the concept of place, and b) the methodological set of tools used to collect, archive, and analyse data.³⁶

Anthropologists who study internet cultures do not deviate from ‘traditional’ models of ethnographies. When confronted with unfamiliar behaviour, objects, and social organisation they do not grasp, anthropologists create a ‘system of meaning’ which translates their experience to more familiar notions that are closer to their understanding (Leach 2007:107). This is demonstrated even in the titles of various ethnographies – *Coming of Age in Second Life* (Boellstorff 2010), *Native on the Net: Indigenous and Diasporic Peoples in the Virtual Age* (Landzelius 2007), and *My Life as a Night Elf Priest: An Anthropological Account of World of Warcraft* (Nardi 2010). In digital ethnographies, the question of continuity also remains an important area of study, following Herzfeld’s argument that anthropologists “determine the criteria by which accuracy [...] is attributed, and to use these to understand the ways in which the members of a society related the past to the present (Herzfeld 2001:57).

Internet cultures do not alter significantly the ways ethnographers conduct fieldwork. As Welz has argued, globalisation has challenged the idea that “culture sits in places”, considering that populations are dispersed in diasporas far from their homeland (Welz 2004). These populations that consist of what Stokes has called a ‘global order’ (Stokes 2004) have become more mobile in two ways: in the physical dimension, by traveling to other places (as refugees, economic migrants, displaced people, tourists, and so on) and establishing new social ties in the places they move to, and in the digital sphere, by maintaining their previous social networks online and developing new ones, regardless of their physical locality. Boellstorff et al. have argued that anthropologists are “tracking a moving target” (Boellstorff

³⁶ Digital anthropology methods are examined in chapter three of this thesis.

et al. 2012:41). Hence, the emergence of the internet as a research site encourages multi-sited fieldwork in digital and physical places that are often represented as networks.

In ethnomusicology the concept of networks has been rather neglected. Brinner (2009) examined collaborations between Israeli and Palestinian musicians by applying network theory analysis. He has studied networks as a set of links joining particular people (Brinner 2009:29), arguing that other means of grouping, such as family trees and organisational charts, are only capable of showing hierarchies, and show us nothing about interactions within a group of people (ibid 165). Other than Brinner's monograph, ethnomusicological work on musicians' networks is very limited.³⁷

There is significant work on music networks that stems from the field of relational sociology, as previously mentioned in this chapter. The Mitchell Centre for Social Network Analysis in Manchester is proactive in the field of music and SNA by developing SNA methods, conducting research, and connecting other scholars that work in similar fields. One of the most prominent scholars based in Manchester is Nick Crossley who has examined punk and post-punk worlds in Manchester, London, Liverpool, and Sheffield in the period 1975-1980 (Crossley 2015). In addition, there is notable work in sociology and music networks that has not been published but has been presented at SUNBELT conferences organised by the International Network of Social Network Analysis.

In ethnomusicology, there are still very few publications that look at music in internet cultures. In the revised edition of *Shadows in the Field* (2008), Cooley et al. discuss virtual ethnography in ethnomusicological terms. The authors relate internet studies with ethnomusicology claiming that the 'virtual' has culturally embedded meanings and diverse

³⁷ See, for example, Thompson 2002.

discursive forms of power (Cooley et al. 2008:91). In her work, Wood suggests that the novelty of the internet as a newfound place conceals the danger of “[...] neo-exoticism, foregrounding the otherness of the virtual Other” (Wood 2008:171) adding that despite the fact that music practices happen online, the majority of them still mainly occur in the offline world (ibid). In both publications, the authors present ethnomusicological concepts, such as power relations and exoticism, as inextricably linked with the emergence of internet studies. However, this perspective is only superficial as it fails to examine the depth and breadth of internet-mediated musical cultures.

A more suitable view is offered by Cheng, who studied music practices in the Lord of the Rings Online, an online community of gamers. In his article, Cheng discusses how people experiment with online behaviours in ways that could not be possible in real-world settings, as well as how means of music-making transform alongside developments in gaming technologies (Cheng 2012:56-57). Similarly, Miller looks at virtual performance in *Playing Along: Digital Games, YouTube, and Virtual Performance* (2012), by examining various case studies of participatory cultures.³⁸ More specifically, she is interested in understanding how music functions in video games, affecting the gamers’ experience, as well as how performance is transformed by means of music-specific video games such as Guitar Hero.

Academic literature regarding ethnographic perspectives on electronic music is rather limited. The most significant publication in this respect is Born’s study of IRCAM, which is an ethnographic account of avant-garde electronic music, as well as a study of the social organisation of the institute (Born 1995). In addition, there are certain edited volumes that include ethnographically-informed articles on electronic music scenes (for example,

³⁸ Miller borrows the term ‘participatory cultures’ from Jenkins’s work (Jenkins 2005).

Lysloff and Gay 2003, Greene and Porcello 2004). Furthermore, articles published in *Dancecult* journal often overview club cultures who listen to various subgenres of electronic music (see, for example, Garcia 2013).

Musicological literature on electronic music is divided in two categories. Firstly, scholars who also are composers or electronic music practitioners publish work related to electronic music, as well as its music-making (see Chadabe 1997, Manning 2004, Emmerson 2007, Collins and d'Escriván 2007, Holmes 2012, Rodgers 2010, and Collins et al. 2013). In this category, one will often read historical approaches to hardware and music-making, as well as various kinds of electronic music composition (such as algorithmic composition, FM synthesis, etc). Secondly, cultural studies scholars study mainstream electronic music subgenres from the perspective of popular music (see Bussy 2005 and Reynolds 2006). In the same category one finds the distinction of 'electronic dance music' studies (Redhead 1997, Butler 2003, Brewster and Broughton 2006). Arguably, very few studies employ ethnographic methods in the study of electronic musical cultures (for example, Wallach 2008, Farrugia 2012, and Novak 2013).³⁹

Cohen has observed that in the 1980s Frith argued that students preferred studying popular music in terms of cultural theory over conducting fieldwork and investigating popular music practices and processes (Cohen 1993:123). A decade later, Cohen found there was still a gap that had been addressed only in a limited way (Finnegan 1989, Cohen 1991) and suggested that ethnographic perspectives on popular music that involved participant observation of musicians' networks in everyday activities and ritual processes would result

³⁹ Demers' study of noise and the aesthetics of experimental electronic music is an exception to the aforementioned methodological perspectives. Although she states that her monograph is not an ethnography of electronic music, she often refers to narratives of listeners, composers, and other related social agents (Demers 2010:4). Demers and other sociologists provide insightful perspectives on the musical experience in everyday life settings. I often refer to this literature in my thesis (for example, Théberge 1997, DeNora 2000, Hennion 2000 and 2003, and Sterne 2003).

in understanding relationships, values, and aesthetics of familiar contexts from a different viewpoint (Cohen 1993:135). Yet a decade after Cohen's paper, Stokes highlighted the disconnection of popular music and ethnomusicology, suggesting that "the real problem is a persistent language gap which ensures that popular music scholars read little ethnomusicology, and vice versa" (Stokes 2003:220). At the time of writing this thesis, there is an ongoing interest to put together writings on popular music with an ethnomusicological twist in the section "Bring the noise" of the *Ethnomusicology Review* journal. As explained above, there are few ethnographies on electronic music and on other popular music genres (see Feld 1994, Wong 2004, Chang 2005, Condry 2006, Baulch 2007, Holt 2007, Matsue 2008, and Stevens 2008). Lastly, the Society for Ethnomusicology comprises a Popular Music section (PMSSEM).⁴⁰

Summary

Chapter two analysed the central theoretical and conceptual axis of this thesis on networked creativity based on sociological and anthropological perspectives on creativity, society, and networks. Furthermore, a literature review of social networks and social network analysis was produced, as well as a critical review of previous research in chipmusic and other ethnographic cases of electronic music.

⁴⁰ A list of popular music ethnographies can be found at the website of PMSSEM < <http://pmssem.wikidot.com/biblio:ethnomusicological-and-other-favorite> > accessed 4/12/14.

Chapter 3. Doing digital and physical, multi-sited fieldwork

Chapter three centres on elucidating research methods I employed for the study of ‘chipmusic worlds’, that is, the chipscene network and networked creativity in chipmusic. Firstly, I briefly outline my experience with chipmusic prior to my doctoral studies. Secondly, I explain how the level of geographical – in the literal and metaphorical sense, particularly as mediated in online locations – and discursive diversity in the chipscene presented certain challenges that could be dealt with the selected methodologies. The last two sections focus on the mixed methodology: ethnography and social network analysis.

3.1 Pre-doctoral encounters with chipmusic and the chipscene

In June 2008 I attended Synch, an electronic music festival in Athens, Greece, that was organised annually from 2004 until 2010. The fourth edition of Synch took place at the cultural centre Technopolis in the neighbourhood of Gazi, next to Keramikos metro in central Athens. Technopolis, previously a location of gasworks, is an enclosed industrial museum which consists of a number of performing stages, some of which are in small warehouses and others, outdoors. The festival was known to electronic music enthusiasts in Greece; it represented the annual ‘ritual’ gathering of avant-garde connoisseurs and electro-pop fans. Synch also attracted festival-goers who were looking for a day or night out. As a music student and a journalist, I was a regular attendee of Synch; in 2008, chipmusic was featured in the festival’s programme for the first time. At the time I was interested in circuit-bending, a modifying and repurposing technique that turned cheap electronic toys into musical instruments, and certain circuit benders also modified videogame consoles. Although I had heard of chiptunes through this group of people, I knew nothing about the chipscene.

Four months after Synch festival and the introduction of chipmusic at the Athenian audience, another chipmusic event took place in Athens. Elias Sifakis, a self-proclaimed retro video games collector and chipmusician, launched Error Code festival in 2007, an event featuring live performances of chiptune musicians as well as an exhibition of retro hardware, where ‘retro’ referred to obsolete platforms. The line-up at Error Code in October 2008 comprised three acts: Tonylight from Milan (Italy) who had also previously performed at Synch festival, Bubblyfish, who is originally from Korea but lives in New York (USA) and Sally Zero, from Larissa, central Greece. The event was hosted in K44, a relatively new, at the time, bar in Gazi, aiming to promote – according to its marketing campaign – ‘underground’ and ‘alternative’ music.⁴¹ I was fascinated by the performance and also by the varied reaction of the audience: some people carefully observed the chipmusicians’ movement and clicks on their Game Boy consoles, others danced to the beats of 8-bit pop song covers such as “Sweet dreams (are made of these)”, whereas there were also people who engaged in discussions far from the stage while rhythmically nodding to 8-bit sounds, and others who glanced at the Amiga-produced visuals projected behind the performers.

After the performance, I approached the artists who were mingling with the audience and asked about their music.⁴² Bubblyfish spoke to me about the chipscene in New York, and the several groups of people that perform, as well as about the existence of online communities such as 8bitcollective.org. Tonylight argued that chipmusic is a global phenomenon, and he counted for me all the diverse places he performed the previous year. Both chipmusicians stressed the fact that it is not just about making music or finding ways

⁴¹ For an analysis of these concepts in the Greek cultural setting, see chapter six.

⁴² I did not have the opportunity to speak to Sally Zero on the night of Error Code. From what I was told by Elias Sifakis, Sally Zero was at the time a 17-year-old high school student from Larissa, and he left soon after the event. Few years later, I contacted him through e-mail and I was able to trace his activity. To this day, he is one of the very few active Greek chipmusicians.

of extending one's creativity; rather, they implied there is so much more behind what an uninformed audience would simply classify as "video game music". Prior to attending Error Code, I searched for chipmusic communities online and on 30 September 2008, I registered on 8bitcollective.org (8bc) with the username "marilou.p". As an initial contact with the chipscene, I listened to chiptunes, read posts and discussions, as well as a very limited number of journalistic articles on chipmusic and the chipscene.⁴³

At the beginning of my doctoral studies at Oxford University, my primary thought was to conduct fieldwork in New York, where I thought the chipmusic *Mecca* was, based on my pre-doctoral encounters. Almost every journalistic article and discussion thread online mentioned New York's Blip Festival as the largest annual and international chipmusic gathering in the world since 2006, and 8bitpeoples, a New Yorkean collective of chipmusicians who seemed to be the most active group of people in the chipscene. As it appeared from the specific publications, this collective and the performers of Blip Festival influenced newer generations of chipmusicians. I was interested to understand the infrastructure of the Tank, the organisation which conceptualised and realised Blip Festival, as well as the politics involved in the wider chipscene landscape. To my eyes, the Tank appeared to be as influential for chipmusic as IRCAM was for the avant-garde movement.⁴⁴ My aim was to conduct ethnographic fieldwork in New York in order to construe the social organisation of Blip Festival-affiliated social agents. However, plans regarding the place for physical fieldwork were revised after discovering the complexity of chipmusic and the

⁴³ As I will explain in chapter four, chipmusic's popularity was boosted after 2000. It was then that Blip Festival, an annual chipmusic festival in New York, was launched. Most journalistic articles discussed Blip Festival, and usually were published before or after the event. Their primary use was to promote the festival to a wider audience. Additionally, some journalistic articles on chipmusic blogs appeared after 2010.

⁴⁴ IRCAM (Institut de Recherche et Coordination Acoustique/Musique, Institute for Research and Coordination in Acoustics/Music, founded in 1977 by Pierre Boulez), is an institute in Paris (France) dedicated to the research, composition and transmission of electro acoustic and avant-garde music. See the ethnography of IRCAM (Born 1995).

chipscene. In the next section, I discuss the challenges chipmusic research presents and the reasons for the selected research methods.

3.2 Challenging chipmusic research

In looking at musical creativity at the online and transnational network of chipmusicians, three aspects were critical in selecting my research methods: a) the geographical dispersion and cosmopolitan character of the chipscene, b) the implications related to researching an online network, and c) the complexity of the discursive context.

With regards to the geographical dispersion of the chipscene, while searching for chipmusic releases and performances, I found that there were active chipmusicians in more than fifty countries worldwide. On one level, isolating and focussing on a particular national chipscene would offer significant insight on chipmusic as a subgenre of electronic music in the specific cultural context. However, it would not account for a holistic understanding of chipmusic and its processes cross-culturally.

Considering challenges related to the digital aspect of chipmusic, the chipscene presented the same difficulty as any other online community, in terms of locating and accounting for its practitioners. Firstly, in online communities there were thousands of registered users and secondly, they often did not state their real location, which was rather problematic in certain cases. For example, while conducting digital fieldwork in 2010, I came across the map feature on micromusic.net where users could save their location on an interactive map. The purpose of the map was to show the geographical dispersion of micromusic.net-registered members. A chipmusician named Tumbildam saved his position on the map as a resident of Antarctica avoiding to disclose his real place of residence, which

was Belgium. Soon after his ‘registration’, other chipmusicians noted their fictional position on the micromusic.net map (see map in appendix) claiming space on the Antarctica, but also on the Easter Island, in the middle of the Arabian Sea in a location entitled “Atlantis”, or in other similar mythical and exotic areas.

In addition, there were numerous communication channels and diverse music circulation practices to examine in the chipscene. For example, one could release chipmusic individually by uploading their music on online communities, or collectively, by collaborating with other chipmusicians at a compilation released by an internet label. Furthermore, chipmusicians seemed to interact in different ways on the internet. For example, North American chipmusicians were significantly vocal in online communities, whereas Indonesian chipmusicians were underrepresented, although the local chipscene in Indonesia was rather rich in performances and releases. And finally, internet architecture presented a significant challenge in relation to data collection. An entire online community disappeared overnight, without leaving any traces, as happened with 8bitcollective.org.

Mobility and immobility as characteristics of chipmusic worlds, resulted in a complex web of issues. Firstly, tracing and following chipmusician networks was a particularly difficult task due to the dynamic character of the chipscene. Networks could easily be altered on a daily basis featuring additions of interactions, e.g. collaborations between chipmusicians. Understanding social organisation in networks can be problematic since I could only observe the size of a network when my informants disclosed their relations publicly (on the internet) or privately (during interviews). Additionally, certain chipmusicians were relatively static, for example, performing only in their country of residence, but others were highly mobile, for example, by regularly travelling to other countries for chipmusic practices.

To the above challenges, I have to also add the problem of language. Language and communication issues varied: although English was the most used language on the internet, in certain cases, people in the chipscene did not master English and, as a result, they could not express themselves appropriately.⁴⁵ For example, to communicate with my Italian informants, I took up a crash course in Italian. In other cases, such as with Japanese chiptunes that were written in Japanese characters, I relied entirely on my informants to explain to me the literal and metaphorical meanings.

Another significant linguistic characteristic is related to the broad understanding of technology and its social meanings. From the perspective of chipmusic-making, one needs to learn how trackers are built and function, and for this, a good knowledge of code languages, such as Basic or Assembly, is required as well as hexadecimal knowledge, which the tracker ‘notation’ consists of. In internet realms, chipmusicians, were fond of internet memes and referred to them in order to communicate among themselves. One needs to be up-to-date with internet jargon and memes which constantly appear in online communities such as 4chan, and are thus communicated via chipmusic communities.⁴⁶

There are also some communicational obstacles with regards to cultural meanings embedded in chiptunes. I will illustrate this with an example. During an event in Italy, a local chipmusician performed a song which evoked cheer and applause. While in the momentum, I asked an event attendant about the particular musical piece and she told me it was a very well-known children’s song – something which I failed to identify as I was not

⁴⁵ Source: Internet World Stats, May 31, 2011, based on results from Nielsen Online, International Telecommunications Union, and GfK. Population information is retrieved from the U.S. Census Bureau. <<http://www.internetworldstats.com/stats7.htm>> accessed 10/1/14

⁴⁶ For an analysis of memes in 4chan community, see Shifman 2013.

familiar with the specific subgenre of Italian music. This song bore extra-musical, cultural meanings, which only people familiar with the cultural context would understand.

The third challenging area in chipmusic research is the diversity and variation of the discursive context. While reading discussion threads and talking to certain chipmusicians, I came across diverse discourses in my inquiry for meaning regarding creative processes and practices in the chipscene. There were certain chipmusicians who argued that music composed on modern computers and 8-bit soundchip emulators, was not – and *should* not be – considered to be chipmusic. Similarly, I found that there were online discussions regarding incidents of ‘drama’ (a term which I understood much later, see chapter four) that occurred in 8bitcollective.org that led to its demise. In looking online, I found digital traces in the form of textual and non-textual information that I could not interpret, as I was lacking the context and background knowledge.

For the aforementioned reasons, I opted for conducting multi-sited fieldwork in various countries in Europe, as well as digital fieldwork in online communities. In addition, I found that social network analysis using computational methods would offer significant insight regarding the analysis of the structure of the chipscene network. As will be demonstrated in chapter four, these methods are complementary to each other. In the following two sections I explain in detail the process I followed to conduct ethnographic fieldwork as well as to visualise and analyse the chipscene network.

3.3 Ethnographic research methods

Digital and physical, multi-sited fieldwork was conducted during the period 2011-2013. Although online ethnography preceded offline fieldwork for planning purposes

(locating chipmusic communities, finding contacts and preparing for fieldwork), the main body of the ethnography is based on ethnographic research conducted simultaneously online and offline.

I should clarify here that I do not see digital and physical worlds as different. However, the difference lies in the methods of inquiry. In this thesis I employ mixed methods that have not been previously used primarily due to the newness of the field, to inquire about the creative process cross-culturally and discursively. For this reason, I scrutinise meticulously my research methods in this chapter. It is worth noting that I only employ the terms ‘online’ and ‘offline’ to explain specific methods in digital and physical realms respectively.

In this study, internet ethnography consists of participant observation as well as semi-structured interviewing.⁴⁷ My task as an ethnographer was to inquire into chipmusic meaning in internet discourse and explore its significance. Some of the data used for this purpose are text in the form of online posts, textual elements such as discussion threads or links, mixed textual and visual information such as internet memes, and face-to-face interviews using Skype, an online calling platform.⁴⁸ Images from the internet, for example screen capture or photos of places relevant to chipmusicians’ experience, sound such as data clips and video, in live streamed form, recorded streamed events, as well as users’ uploaded videos, were also part of the collected data.

⁴⁷ Prior to conducting fieldwork, I prepared a questionnaire consisting of twenty-three sample questions. I used these questions as a reference. Certain questions were direct, for example “What is the difference between chipmusic, 8-bit, chiptunes, and micromusic?”, or “Are you in any netlabel?”. There were some open-ended questions such as “Could you walk me through the process of how you create music?”, and “What is a good chiptune for you?”.

⁴⁸ Mentioning ‘data’ as a source of information for human activity in an anthropological context may seem to contrast the discipline’s qualitative principles. However, the internet represents fundamentally coded information that users attach meaning to. Thus, internet discourse is found in digital data such as user-defined textual elements, audio, video, and images. Unlike oral communication, actions performed online leave a traceable residue in the form of data due to the architecture of the internet. The aim of the ethnographer is to make sense of this coded information, and to abstract meaning out of online activity.

Due to the diversity of discourses in the chipscene, choosing a large ethnographic sample is more representative, albeit methodologically challenging. Overall, I communicated with 150 people (recorded interactions) out of which, eight people emerged as key informants.⁴⁹ The informants' age ranged from 18 to 55 years, and they originated from the countries below (listed by continent): Americas: Argentina, Colombia, the United States, Brazil, Canada, Guatemala, and Mexico; Asia: Japan, Indonesia, Malaysia, and Hong Kong; Europe: England, Scotland, the Netherlands, France, Italy, Spain, Greece, Sweden, Norway, Finland, Switzerland, Belgium, Hungary, Germany, Ireland, Austria, Russia and Poland; Oceania: Australia and New Zealand. It is worth noting that there was not any discrimination based on age in the chipscene network.

This sample is predominantly represented by male informants (figure 1) although female and transgendered (male to female as well as female to male) people are also actively visible throughout this thesis. At this point I should clarify that gender bias was almost invisible. As will be explained in chapters four and seven, negative comments based on one's gender or sexuality were ill-received as they presented the chipscene network with a divide. Chipmusicians often adopted behaviour that enhanced the connectedness of the chipscene network, for reasons that will be analysed in the aforementioned chapters.

⁴⁹ While I was working on a visualisation of my personal network on Facebook (the online social networking service which was launched in 2004), I noticed that I was connected to 150 people related to the chipscene. This group of people was geographically dispersed, and their activities varied from chipmusicians, graphic designers, event organisers, netlabel managers, and online community administrators. The number of my Facebook connections reminded me of Dunbar's number, which suggested that one can maintain stable social relationships with up to 150 people. Dunbar himself has conducted research on Facebook to find whether internet networking affects his originally-found number (Dunbar 2011). He concluded that although some people may have thousands of connections on Facebook, they have the cognitive ability to interact only with a close smaller group, which still consists of 150 people.

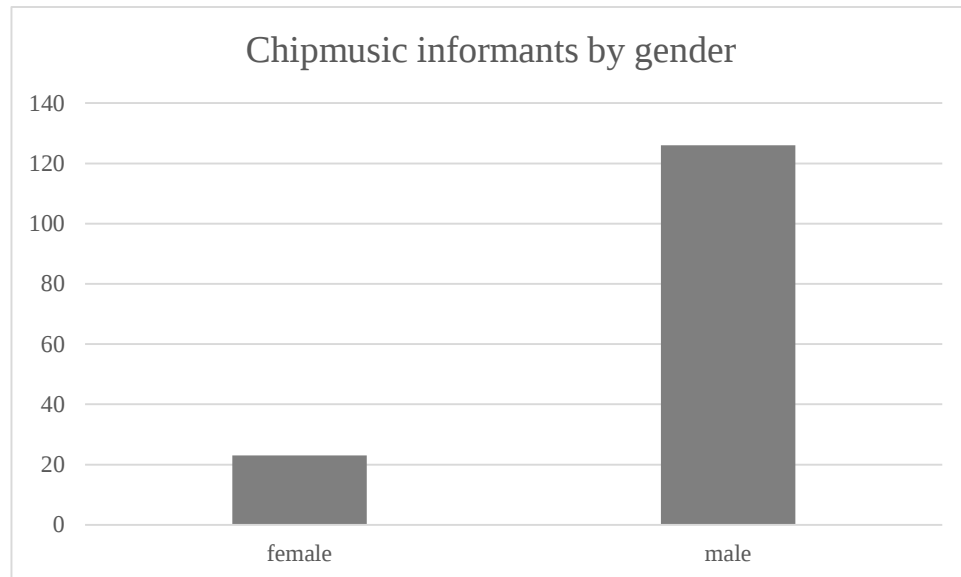


Figure 1. Clustered column depicting chipmusic informants by the gender they disclosed (126 male, 23 female, one female is a male to female transgendered person).

Most of the informants spoke English, and in some cases we communicated in Greek, French, Italian, and German. There was little diversity with regards to vocation; some informants were media, arts, sound engineering or music students, and the majority of professionals worked in positions that required technological knowledge and expertise: computer and microchip programmers, videogame music composers, sound artists and engineers. Some of my informants worked in the videogame industry, and others supported themselves by working for corporate industries, from food chains to electronics shops. There were also a few people who had academic positions. In the two years I spent talking to chipmusicians, I also came across one lawyer and a chocolatier.⁵⁰

My key informants ranged from ‘gate-keepers’, who were people in significant positions of power, to lesser-known chipmusicians, who were new in the chipscene at the

⁵⁰ During an event in Paris, I asked one of my key informants if he knew anyone in the chipscene whose job is not related to technology. He replied to me that most people tend to do creative jobs, and usually, because of their educational background, most chipmusicians actually work in jobs that enable them to put their technological skills to use. The lawyer and the chocolatier were the only two French people he knew that earned a living away from the field of technology.

time of our initial contact. Key informants acted as facilitators of my research by helping me learn about chipmusic, immerse in the chipscene, as well as understand the technical and aesthetic aspects of music-making and performing.

The eight key informants provided me with assistance in contacting other chipmusicians and understanding chipmusic discourse. Tonylight, who was one of my first contacts, talked to me about the chipscene in Italy and New York as well as the technicalities of chipmusic-making on the Game Boy. He introduced me online to Javier Polo from Spain, who at the time was filming *Europe in 8 bits*, a documentary about chipmusic in Europe. One aspect of my multi-sited fieldwork was following Javier and his filming crew in European locations, while offering assistance when needed – for example, handling recording equipment during interviews, translating interviews from French to English, and proofreading documents in English.

During one of the events I attended in Paris, I met Jérémie Glafouk, who was organising micromusic.net parties in France since the 1990s. Jérémie taught me about the history of the chipscene, sharing his experiences and often helping me make sense of conflicting, misleading and scattered information I had discovered during fieldwork. In the same Parisian event, I met Anders Carlsson from Sweden, otherwise known as Goto80. He has a varied professional background as a demoscener, chipmusician, blogger, and researcher of chipmusic. He broadened my chipmusic horizon, giving me an overview on chipmusic as performed in several national discourses.

While I conducted online fieldwork I contacted Janne Suni, a Finnish chipmusician also known as Tempest. Janne was famous in the chipscene as Timbaland was alleged to

have plagiarised his composition “Acidjazzed Evening”.⁵¹ Janne shared as much as possible with me regarding the case, but his most significant input was related to composing and performing practices, as well as his views on chipscene ideology. Adrian Thompson, one of the primary organisers of Superbyte, an annual chipmusic festival in the UK, contributed to my understanding of chipscene politics and of the organisers’ perspective on chiptunes infrastructure. On the other side of the Atlantic Ocean, I virtually met with Roger Cruz, who runs the netlabel Chip-Con International, and also organises events in North America. Roger offered his narrative of transnational networks of chipmusic as well as chipscene politics.⁵² And finally, at the beginning of online fieldwork I contacted online Nikko Perdana Putra, also known as Batu Berguling (transl. Rolling Stone). This chipmusician from Indonesia was my key connection into the practices of South East Asian chiptunes.

One of the most prominent methods that emerged through fieldwork was snowballing, a method that is useful in creating informant networks and also observing relationships in a particular group of people. Although I contacted a number of informants, I was also referred to a number of chipmusicians by their friends or colleagues. However, snowballing can be restrictive as a sampling method, leading to bias and error. In order to overcome this pitfall, my sample consisted of networks discovered through snowballing, but also included networks extrinsic to the snowballing sample. My aim was to trace networks developed through a number of seemingly disconnected informants, in the sense that they did not have in common attributes such as locale, age, platform used for chipmusic-making, or even chipmusic taste. In the following section I describe my actions in the field, as well as how I traced the aforementioned networks in digital and physical realms.

⁵¹ The case is analysed in chapter seven of this thesis.

⁵² The concept of ‘virtual’ in this thesis refers to non-physically embodied encounters which occur online.

3.3.1 Immersion in the field

Participating in the field does not imply that one has to perform one's informants' practices (Boellstorff et al. 2012:65) – however, the ethnographer needs to learn about these practices in order to understand them. While in the field, I opted for an identity of a 'professional stranger', and I presented myself as someone who was academically interested in learning how and why chipmusic is created, and also, in understanding how processes are organised in chipmusic-making and performing. I was on interested in becoming a chipmusician, partially to limit my influence on the chipscene.⁵³

Multi-sited fieldwork on the internet consisted of virtually following chipmusic networks as they formed through online communities and social media, as well as communicating with chipmusicians on a daily basis. Online chipmusic communities were chosen as the starting point for they were the primary source of information about chipmusic; or, as I was told by the chipmusicians I met in Athens, chipmusic communities were the first place one should visit online in order to learn about chipmusic-making. At the same time, online communities appeared to be an appropriate place to begin fieldwork: 'visiting' the chipmusic community in their place of activity.

Fieldwork was conducted in five online communities: a) micromusic.net (23476 members), b) 8bitcollective.org (33936 members, although the founder, Jose Torres told me during an interview that there were more than 50000 registered members when the community shut down), and additionally, once 8bitcollective was shut down in November 2011 and all content was removed from the server, I used its back-up on Web Archive to

⁵³ See discussions in anthropology concerning the ripple effect, for example, Gorzelsky 2004:73, Madden 2010:23, and on the identity of the fieldworker in ethnomusicology see Lortat-Jacob 1995 and Barz and Cooley 2008.

retrieve some information saved by the administrators, c) chipmusic.org (7451 members), d) noisechannel.org (845 members), and e) µCollective.org (pronounced micro-collective, 1312 members).⁵⁴

The primary technique used in online communities was ‘lurking’, allowing me to be more of a ‘fly on the wall’ observant.⁵⁵ Lurkers are observers, silently reading for announcements and discussions, abstaining from any conversation or interaction.⁵⁶ As was revealed during fieldwork, some of my informants argued that they did not participate in discussions of controversial topics, although they followed these discussions, because they thought that their involvement and expression of opinion could affect their relations with other chipmusicians. Thus, the undercurrent politics of the chipscene can be understood by explaining lurkers’ motives, but identifying lurkers is only possible if they reveal themselves, for example, during an interview.

During fieldwork I encountered another example of social behaviour online called ‘trolling’. During tweet information retrieval using Topsy, I found that a teenager from Venezuela registered his location in Greece, and for this reason, an overload of tweets on chipmusic originating from Greece was observed.⁵⁷ The internet allows for anonymity as Stern explains (2009:loc.2215) and users often attempt to deceive others with misleading information by trolling. Trolling is a practice of deception, a way of stating one’s online

⁵⁴ Numbers of registered members in each online community are given here to determine the size of the chipscene and its participants on the internet. Numbers of members were calculated in January 2014 for micromusic.net, chipmusic.org, and noisechannel.org; in March 2011 for 8bitcollective.org, and in December 2013 for µCollective.org. In the cases of chipmusic.org and noisechannel.org, the list of members is available online; this calculation was confirmed with the administrators of the online communities. Moreover, I contacted the administrators of micromusic.net, µCollective and 8bitcollective.org to retrieve the numbers of members in the respective communities.

⁵⁵ Abstinence from conversations about chipmusic and their constant observation enabled me to better understand terminology used in the online communities, which made future conversations less challenging in terms of specific vocabulary and jargon.

⁵⁶ For an analysis of lurking from a psychological perspective, see Bishop 2012.

⁵⁷ Results derived from Topsy.com Tweet analysis. Until November 2013, there were 524 tweets from Greece.

identity in order to cause social awkwardness, and it is observed among several internet and hacker cultures (see, for example Donath 1999, Herring et al. 2002, Krappitz 2011, and Kissane 2012). The chipscene is an integrated internet culture in terms of conduct and behaviour online, and trolling is a practice commonly detected.

Facebook, the online social networking service, was a significant online place for ethnographic research and content analysis. As will be explained in chapter four, following the demise of 8bitcollective.org in 2011, a number of chipmusic-related groups appeared on Facebook. Groups represent local chipscenes (see, for example, “Micromusica Italy”, “Chiptune Belgium”, “8bit Lover Berlin”, “Yogyakarta Chiptune”), but also the online chipmusic communities previously mentioned (8bc, micromusic, noisearchannel etc), netlabels (“Coucou netlabel”, “ChipCon Int.”), and subgroups (“LGBTune”, “UK Chiptune Gigs”, “8bit Lounge”, “Fakebit Police District”). Additionally, chipmusicians maintain their personal friendship networks on Facebook – which, to a certain extent, offer insight in understanding politics and relationships based on online interactions.

I also used Facebook as a platform to conduct synchronous and asynchronous interviews. In the first instance, synchronous interviews consisted of daily routine chatting, unstructured and semi-structured interviews. I found that more people responded to my Facebook messages rather than personal e-mails sent to them, or even, direct messages on online communities. Perhaps this is because at the time of conducting fieldwork this social medium was used on a daily basis by chipmusicians, but also because replying to messages is easy and can be done even on one’s mobile phone (i.e. it is user friendly, in the sense that it does not require the use of a computer as perhaps is the case with online communities). I also observed that chipmusicians used Facebook more often than online communities, particularly post-8bc.

Daily interactions on Facebook also included a number of practices based on Facebook netiquette (i.e. internet etiquette, see glossary) – ‘Liking’ and commenting on posts, images, comments, songs, and links, joining chipmusic groups, responding to chipmusic event invitations (online or offline events), and also maintaining my profile to support my self-presence as a researcher of chipmusic: this included posting articles about chipmusic that either I wrote or found online, re-posting chiptunes originally uploaded by their creators, and uploading some pictures and videos from the events I attended.⁵⁸ Another interesting discovery in relation to my ethnographic use of Facebook, was that most informants seemed to ignore what my real name was, because I used a pseudonym. They called me by my pseudonym, “Christabel Etheriel”, and some appeared bewildered when I introduced myself as Marilou. However, as will be explained in chapter four, when I began fieldwork I realised that chipmusicians referred to each other more often by their nicknames rather than their real names.⁵⁹

Twitter, the online social networking and microblogging service founded in 2006, was also used to trace chipmusicians’ activity.⁶⁰ As accustomed on Twitter, one can ‘follow’ registered users, by receiving a list of their posts, otherwise known as ‘tweets’, in the form of a newsfeed – which is a service that provides updates on a regular and continuous basis – based on distributed information by a user. Twitter was also utilised for information retrieval, using keyword search, in order to trace and categorise chipmusic-related posts by

⁵⁸ ‘Liking’ is a common practice on Facebook when a user shows their support and positive sentiment by clicking on the “Like” button situated underneath posts.

⁵⁹ “Christabel Etheriel” is a pseudonym I chose to use when I composed music. When I joined Facebook in 2006 I did not want to sign up with my real name for a number of personal reasons. Opting for this fictional anonymity was confusing during fieldwork. Soon, I learnt to respond to either “Christabel” or “Marilou”. Both names can be traced in my chipmusic research – as a benefactor of Chiptography, a photographic collection of chipmusicians, I am acknowledged as Marilou Polymeropoulou, whereas in the end titles of the documentary *Europe in 8 bits*, as “Christabel Etheriel”.

⁶⁰ Microblogging: posting entries or updates with limited number of characters.

country. This particular information was informative for the visualisation of the chipscene network.

Multi-sited physical fieldwork was conducted between October 2011 and November 2013 in Europe, and more specifically in the UK, France, Spain, Germany, Belgium, the Netherlands, Italy, Greece, and Sweden. The time spent in every country varied from a number of days to weeks. As previously mentioned, Tonylight introduced me to Javier Polo, who invited me to a chiptune party in Paris, in which he would film next. I attended the specific event and also I followed Javier and his filming crew in Berlin, Barcelona, Valencia, and Rome and additionally, I visited Utrecht, London, and Paris for other chiptune parties. Moreover, while in the field I met local chipmusicians who invited me to return to their city of residence for other events. For this reason, I visited the above countries on other occasions for fieldwork, staying with my informants. Although participant observation was not possible during informants' working hours, as their workplace was off my limits, I had the opportunity to spend most evenings and weekends with them.

In all, I attended the following events: 1) "8bit 'em all", Paris, 5 November 2011 at 6B. 2) "Worldtronics '11", Berlin, 30 November to 4 December 2011 in Haus der Kulturen der Welt. 3) "Shake it", Valencia, 2-4 December 2011. 4) Microma HQ Invasion 4 Europe in 8-bits Roma Party, Rome, 28 January 2012 at Dal Verme. 5) Anime Convention, London, 11-12 February 2012 at London Metropolitan University, The Rocket Complex. 6) "Festen #666" in Paris, 10 March 2012 at le 9b. 7) "Analog Attack", London, 7 April 2012, at the Cornershop. 8) "Eindbaas", Utrecht, 13 April 2012 in Poppodium Ekko Utrecht.

Fieldwork in Europe was also conducted on a number of occasions during short or longer trips. More specifically, I visited for the purposes of participant observation: 1)

Manchester, UK (18-24 October 2012), 2) Athens, Greece (18-30 December 2012), 3) Gothenburg, Sweden (23-25 January and 26-28 February 2013), 4) Paris, France (10-12 September 2013), and 5) Brussels, Belgium (28-30 September 2013 and 26 October to 3 November 2013).

Digital fieldwork varied according to different time zones. For example, discussions and interviews with people from the West Coast in USA, Malaysia and Indonesia, took place at *ante meridiem* times (GMT) to accommodate the time difference. Given the large number of informants, their diverse working times and places of residence, receiving messages at all times is expected. In my attempt to capture the moment when my informants were available, I replied to most messages at the time they were sent. Fieldwork was also attempted at online events which were broadcast using online video and audio streaming services (for example, on Justin.tv or mixlr.com). I was particularly interested in the juxtaposition of online and offline events and looked for textual patterns of communication. The events I virtually attended on the internet were: 1) “Double Dragon” in Paris, 9 December 2011, taking place at La Dame de Canton (ship restaurant). 2) “Eindbaas” in Utrecht, 13 January 2012, in Poppodium Ekko. 3) “Blip Festival Australia”, in Melbourne, 17-18 February 2012. 4) “Blip Festival Tokyo”, in Tokyo, 20-21 October, 2012. 5) “Clipstream” (internet-only streamed event), 7 December 2013.

3.3.2 Unpacking the ethnographic toolkit

Following networks of chipmusicians required a significant amount of travelling. In this sense, being-in-the-field practically means moving-in-the-field. For groups of high mobility, a relatively flexible set of tools is also needed to document, collect and archive ethnographic data based on day-to-day interactions. To accommodate high mobility

challenges as well as security concerns with regards to travelling in urban areas and attending events in nightclubs and squats, a compact travelling backpack was used. A small, cabin-size piece of luggage solved the main issue of mobility in the city. It was also cost-efficient for airplane travel. Carrying a backpack also eliminated the risk of theft as I had the opportunity to carry my belongings at all times.

Keeping fieldnotes organised is an important ethnographic practice while doing multi-sited fieldwork. In the case of networked publics, note taking is crucial in order to map out, organise and understand vast, transnational social networks. In addition, during continuous travelling when one often loses the sense of time, keeping a travel diary in the form of fieldnotes assists the reflecting process. While travelling, I used the time to digitise fieldnotes to Evernote, a software which functions as an organised database of text, audio, video and images. Interviews and other audiovisual material were also saved on the same platform. Eventually, this simplified the process of archiving and ultimately, preparing to write up. Although Evernote can be accessed online and offline, on a variety of platforms, I found that relying only on this software was not a wise option, in case there was a server failure which could result in the loss of any data. For this reason, I set up a private blog, “e-Fieldnotes” (<http://efieldnotes.wordpress.com>), to back up all my fieldnotes and other digital material. Maintaining open access to the blog would be unethical, and could also prove to be harmful for my informants as some of the fieldnotes included personal and at times, sensitive information.

While in the field, my aim was to keep a research blog as a diary. However, this was not successful for a number of reasons: firstly, a stable internet connection which was needed for updating posts, was not available at all times and places. Secondly, etiquette would not

allow this; most of my time in the field was spent interacting with my informants, who always left their mobile phones aside.

Maintaining contact with chipmusicians while in the field was important in order to build rapport and sustain the relationships. Chipmusicians usually travelled individually or in small groups; for example, in my two years of fieldwork, there was not a single event that all chipmusicians attended without exception. However, chipmusicians communicated regularly with each other using low-cost or free communication services over the internet, such as WhatsApp, Viber, Facebook messenger, and Skype that could be used on computers and mobile phones. These platforms enabled me to be in contact with chipmusicians regardless of our location.

A number of computer software packages were used for the purposes of collecting data. In the early stages of my doctoral studies, I discovered Ethnochat, an instant messaging (IM) program build for ethnographers who conducted computer-mediated interviews and discussions. This program, in its prototype form since 2009, had three significant features which enabled one to 1) save an automatic log file of a conversation, 2) create and manage interview questions with one-click question copying into the chat window, and 3) create and manage tags based on keywords (Zalinger et al. 2009). Ethnochat was built to be integrated within a number of networks which enabled IM, for example, AIM, Yahoo!, Google, and MSN. The use of Ethnochat required some technological understanding and prior knowledge (for example, how to implement code on IM platforms) and for this reason using it was impractical. However, if Ethnochat is further developed, it could potentially be useful for computer-mediated ethnographic fieldwork. For this reason, I used my private blog for archiving and managing of text-based discussions over the internet.

A wide range of software programmes are available for ethnographic research. Firstly, to record interviews conducted on Skype, I installed Evaer, a software which captures both parties' video and sound, and saves it to a compressed video file (.mp4). Recording video interviews after getting informants' consent was particularly useful as I had the opportunity to re-examine the recorded interview at any point. Similarly, to record and save videos of streamed events, Movavi, a screen capturing program which produces compressed video output was used. The drawback of saving and archiving video interviews on a computer is the large size of the output file.

Chipmusic can be seen as Big Data in the sense that there are a large number of social actors in this transnational network, who communicate information using a variety of media. Big data analysis is particularly significant because Big Data include large volumes of detailed information that can ultimately assist in representing social behaviour and activity. Tweets, status updates, images, memes, videos, articles, circulated CDs and MP3s, performances in diverse cultural settings, local chipscenes, relationships and interactions observed in online and offline networks, large chiptunes databases, online communities with thousands of registered members, and other similar Big Data can be difficult to comprehend and consequently, find meaning. Big Data can be broad but shallow, and ethnography is a useful tool for their interpretation.

During the two years that ethnographic research was conducted, an overload of notes, digital data, oral narratives, images, and other sorts of material was collected. Archiving is a skill anthropologists develop during their careers and in the age of information it is possible to enhance this by using a number of tools. In the field of social sciences, NVivo is one of the programs widely used for archival and analysis purposes. For ethnographers, NVivo can be particularly useful to break down large qualitative datasets, and find patterns which can

be ethnographically interpreted. In the case of chipmusic analysis, I found that NVivo could provide some insight with specific queries, for example, word frequency analysis or sentiment analysis in a number of texts. Although I constructed a database with my material, I found its maintenance a fairly challenging task due to my laptop's disk size restrictions.

3.3.3 A note on ethical considerations and research ethics

In this section I discuss key issues related to ethnomusicological and internet research. In human-centred research projects employing ethnographic methods, ethical assessment is an integral part. Research ethics involve protecting one's informants or participants during fieldwork but also, post-fieldwork, for example, when it comes to disseminating and publishing results. In recent years, prior to conducting fieldwork, the ethnographer completes a research ethics form that needs to be approved by an appropriate body, which is either a research ethics board (REB) or an institutional review board (IRB). This primarily applies to research in the field of social sciences, for example in anthropology and sociology, or in humanities, provided that the research study involves human participants.

In ethnomusicology, discussions about ethics were prominent during the 1990s. In his article entitled 'Ethical issues' (1992), Mark Slobin identified three sources from which ethical codes can be extracted and applied to ethnomusicological research: a) the position statement on ethical considerations by the Society for Ethnomusicology, b) similar statements by the American Anthropological Association, and c) writings of ethnomusicologists and other music scholars on ethics (Slobin 1992:329).⁶¹ Slobin has also

⁶¹ Society for Ethnomusicology position statement on ethical considerations (available online on <<http://www.ethnomusicology.org/default.asp?page=EthicsStatement>> accessed 5/2/14).

identified the problem of ethics as a ‘Western’ preoccupation, in the sense that it is experienced by ‘Western’ scholars working in ‘non-Western’ societies (ibid). Some of the severe ethical issues in ethnomusicology emerge from the commoditisation of field recordings and their publishing as ‘world music’ by ethnomusicologists (see Seeger 1992, Slobin 1992, Kartomi 1999). Other ethical concerns address ownership and particularly, music copyright in non-Western societies (see Seeger 1992:347, Nettl 2005:197). And finally, as Shelemay points out, “[m]ost discussions of ethics have tended to focus on interpersonal relations both during and after fieldwork, and only incidentally to address the impact on the musical tradition itself” (Shelemay 2008:144, see also Kippen 2008). It is explicitly declared in the Society for Ethnomusicology position statement on ethical considerations (1998) that, “[a]s one of the human sciences, ethnomusicology has a particular responsibility to deal ethically with the people and communities that work with ethnomusicologists”. The particular document, which has not been updated since 1998, fails to acknowledge the internet as a fieldsite, methodological tool, or a place where social and musical activity occurs. Concerns with regards to physical ethnography are still undoubtedly important; however, with the emergence of the internet as a new place of musical activity, ethics in any kind of internet-mediated musicological research, need to be redefined.

Completing the research ethics approval form for my research project proved to be an unexpectedly challenging, yet revealing experience. In the first place, the form proved to be inadequate to assess harms, risks, or any ethical and moral concerns of my research project, as it appeared to be tailored for research projects in the medical sciences (e.g. included questions about administration of drugs, involvement of radiation). One section, which attracted social sciences students, required to obtain written consent from participants and to state potential risks that may cause harm. Several questions emerged from this document in relation to my encounters with ethnographic practices on the internet: how does

one acquire informed consent in the case of online participatory events? How can one confirm an informant's identity given the option of anonymity online?⁶² And more generally, how is it possible to assess an online ethnographic project prior to fieldwork, and how can this be combined with risk assessment in physical ethnography?

These questions are relatively new to ethnomusicology, but not in the field of internet studies and anthropology (see for example Hakken 1999:209, Landzelius 2006, Gajjala 2006:273). As Anthony Seeger has pointed out “[...] no major figure in the field of ethnomusicology ever defined the object of our study in terms of rights and obligations, conflict, or adjudication. The issues simply were not raised by our ‘ancestors’ and have rarely been part of our theoretical reflections since” (Seeger 1992:346). The recent reassessment of research ethics by the Association of Internet Researchers (2012) provides answers, or at least, suggestions on how to address such complex questions, and represents a primary source of information for anyone undertaking internet-related research.⁶³ There are a number of problematic concepts outlined in the specific document, out of which three categories can be applied to ethnographic research on internet-mediated musical practices: a) informed consent, b) openness and dynamics of private and public places, and c) anonymity.

In the position statement on ethnographic research and institutional review board of the Society of Ethnomusicology (SEM) (January 16, 2008) it is affirmed that “[r]esponsible conduct in field research in ethnomusicology is guided by the following obligations: [...] Cultivation of relationships based on informed consent, rights of privacy and confidentiality, and mutual respect”. However, the idea of getting consent online is inherently problematic

⁶² Wood, for example, studied a Jewish music mailing list whose members were almost impossible to identify as personal details were not required to participate in the community (Wood 2008:173).

⁶³ ‘Ethical Decision-Making and Internet Research – Recommendations from the AoIR Ethics Working Committee (Version 2.0)’ <<http://aoir.org/reports/ethics2.pdf>> accessed 5/2/14.

given the characteristics of mediated technologies. For example, if one is conducting online fieldwork at a MMORPG, how can consent be obtained by all participants that appear in the game at the time, seeing that it is a dynamic place where avatars appear and disappear at their users' will?⁶⁴ How is it possible to continuously inform every user, in both cases, that research is conducted real-time? Consent depends on the degree of openness in an online environment, as Sveningsson (2009) writes, and in some cases it is not required – if, for example, an online environment is considered as public.⁶⁵ This information however, is not available in SEM's position statement.

During participant observation online, I captured screenshots which pictured the performers on stage, part of the audience, and in some cases, chatroom activity which was embedded on the specific page. Would using this image capture without the informed consent of the musicians and the audience be considered unethical? Would it even be possible to get informed consent, even if I physically attended the event? And what about the anonymous chatroom participants – other online viewers – whose discussions were visible on the screenshot displaying their pseudonyms? It is the ethnographer's responsibility to act with the guiding principle of care (Boellstorff et al. 2012:129) and to ensure the informants' protection from any potential harm. In the case of the specific event, which was streamed live on a public environment, the activity stream does not contain sensitive information as it is neither harmful nor offensive: there are participants who are pictured

⁶⁴ MMORPG: Massively Multiplayer Online Role-Playing Game, an internet-mediated gaming environment. An avatar is the digital representation of one's self in a MMORPG, or any other online place (for example, Second Life). One can customise the appearance of an avatar, which functions as an embodied presence used to interact in a digital environment with other avatars. Behind every avatar there is a user who controls movement, speech, and other activities. In digital worlds, avatars can also be robots (or bots), which are programmed to operate automated tasks (see more on avatars and bots in Boellstorff et al. 2012).

⁶⁵ Sveningsson (2009) distinguishes four categories of internet environments in relation to openness: 1) public, defining it as one that is open and available to everyone with an internet connection, 2) semi-public, which is an online environment available to all registered members, 3) semi-private, an online place which requires membership, registration and also other formal requirements such as belonging to the organisation that created the online environment, and 4) private, which is hidden or unavailable to most users, with restricted access (Sveningsson 2009:loc.1779-1780).

dancing in front of the stage, and musicians performing on stage. Additionally, distinguishing and, thus, identifying people is impossible from the low-quality screenshot. For this reason, consent is not needed. In another example, which was briefly outlined in the previous section, one could identify the chipmusician from the image on my blog post which pictured him holding a cannabis rolled-up cigarette, and for this reason this was an ethical concern. Thus, the picture had to be removed or appropriated prior to displaying it.

In ethnographies, the use of informants' real name is an ethical concern, as they can be exposed and easily identified. For this reason ethnographers prefer using pseudonyms or coded names for their informants. Traditionally in the study of popular music, real names of social agents such as musicians, CEOs of record labels, managers, recordists, producers, lyricists, and composers are usually published. One may suggest that the impact of an ethnography of popular music may not be as severe on the informants, as popular music agents are often seen as figures of power who are part of a large industrialised community, in contrast to a group of musicians in a relatively smaller collective. Another reason for the use of real names is that early musicological studies of popular music studies are music-oriented: examining known compositions in their final, published version. Music historians examined the lives of composers as well as their work as crystallised knowledge: it was already a moment in the past. With the expansion of the object of popular music studies from textual to more dynamic elements of music, such as performance (Middleton 1990:111), the social aspect becomes integral to the analysis of music and ethnographic encounters enable musicologists to develop appropriate terminology for music analysis based on the musicians' experience. Thinking in terms of anthropology, informants in popular music should be anonymised as ethnographic research is synchronous with the life of the specific group of people which one researches, therefore, publishing findings exposes informants to a risk that can have immediate effect on their lives. From the perspective of musicology, using

composers' real names is imperative for a number of reasons, for example, to attribute music to a certain composer but also to enable one to retrieve the specific musical example and listen to it, or to contribute to the literature on specific social agents in music.

In interdisciplinary projects such ethical considerations need to be adjusted and contextualised appropriately. For instance, in this thesis, some chipmusicians are mentioned with their real names. Yet at certain times they are anonymised, and more specifically when sensitive or potentially harmful information is narrated. Still, there is an integral risk that a chipscene insider who will read this thesis may recognise an event or someone's comments and identify the informant. However, the most sensitive information is extra-musical and has been interpreted in a manner that enables readers to see the importance beyond the facts (for example, in the case of chipscene gossip, chipmusic taste and criticism, or personal information such as death threats or hacker attacks).

The ethical concern of anonymity also applies to the ethnographer and there are two arguments that can be juxtaposed. Firstly, certain scholars insist that the identity of the ethnographer as well as their intentions should be made clear at all times (see for example, Wood 2008:184). For this reason, online practices, such as lurking, which mask the ethnographer's identity, are considered unethical, as the informants are not aware that research is conducted at the time they are interacting online. In contrast to this, employing anonymity can be constructive, assisting in the prevention of a number of issues. For example, Cheng, who conducted fieldwork with the musical community of *The Lord of The Rings Online*, opted for anonymity to maintain transparency of several online activities and prevent the ripple effect (Cheng 2012:34). In other ethnographic projects, lurking is often practised to protect the researcher (see for example, Sanders' study with sex workers online 2005:71), to help transcend issues of social acceptability (Rutter and Smith 2005:87), and to

establish the boundaries of an ethnographic field (Rutter and Smith 2005:91). During physical ethnography, I presented my identity to informants at all times, and I found there was a lot of enthusiasm in the chipscene regarding my academic involvement. One needs to be aware that the ethnographer may be seen as a powerful figure, which can be problematic; there is the issue of misinterpreting events, when certain informants may stage a performance aiming to please the ethnographer in order to prove one's legitimacy, or for publicity reasons, expecting the ethnographer to promote one's artistic endeavours.

3.4 Social Network Analysis methodology

Quantitative data used for the visualisation of the chipscene network were organised in large datasets. The sampling frame includes quantitative information retrieved from a number of chipmusic-related sources: 1) a list of "Videogame Musicians, Chipartists and Visualists" (2013) compiled by the administrators of the Chiptunes=Win! Project, 2) the chipmusician database of *Europe in 8 bits* (2013), 3) a list of netlabel releases, 4) the list of my informants, 5) a list of chipmusic events, 6) text and textual elements posted on social media retrieved using an online tool developed by Topsy company, and 7) the chiptune world database, an archive moderated by chipmusician Sycamore Drive.⁶⁶ During the overall analysis and merging of all datasets, duplicate entries were eliminated.

In the first instance, although the list of Chiptunes=Win! comprised chiptunes, video game musicians, and visual artists, only the chiptunes dataset was used for the visualisation of the network. As explained in chapter one, video game musicians and visual artists interact

⁶⁶ Chiptunes=Win! "Videogame Musicians, Chipartists and Visualists" Excel file (<<http://tinyurl.com/nuqn2j5>>) and Google Map (see Appendix for the actual map) (<<https://mapsengine.google.com/map/edit?mid=zxsKE1YB3RFw.kU1FZRSF3vaw>>), accessed 17/1/14. Topsy Labs Inc. is a social research and analytics company founded in San Francisco, California in 2007. They provide a comprehensive index of tweets dating back to 2006. Topsy offers tools to analyse tweet posts. See also appendix.

with chipmusicians, but the primary focus of this thesis is chipmusic. Overall, the chiptunes dataset included 603 chipmusicians connected to 43 countries (based on origin or residence). The second dataset featured chipmusicians that appear in the *Europe in 8 bits* documentary as well as on the website which was created for the purposes of the movie. The documentary was filmed during the period 2010-2011 and overviews the chipscene in Europe featuring 54 chipmusicians who originate from or reside in one of the European countries.

The third dataset comprised a collection of netlabel releases during the period of fieldwork (2011-2013). Such information was available online, on the netlabels' archive, or by request, from the label manager. In all, I collected data from twenty netlabels: Lowtoy, Pterodactyl Squad, Coucou, Calmdownkidder, Chippanze, Half Lesbian, Chip-Con international, Noisechannel, Da! Heard it Records, Darling Dada, Datag glitch, Jahtari, Micromusic, 8bitpeoples, Bleepstreet, Data Airlines, Kittenrock, Ubiktune, Piko Piko Detroit, and Pxl-Bot (see appendix for webpages). The dataset was tabulated by chipmusician name, country, date, and netlabel name. Collective releases by various artists were considered only in the case they were related to a particular locale, for example, "Russia in 8bits" (2013), Coucou netlabel. Overall, 399 releases from 39 countries were accounted for that particular period of time.

The fourth dataset reflected my interactions with the chipscene. A list of my informants was divided by name, country, and sex. The dataset which referred to chipmusic events organised in diverse countries included information about the place, date and name of the event, indicating whether I had attended it or whether an informant discussed the particular event with me. Only events that took place during the two year-period of fieldwork were included.

The next dataset indicated the number of chipmusic-related tweets that originated from every country (collected data included 400,000 tweets from 120 countries). Tweets were collected using Topsy, a particularly useful tool for information retrieval on Twitter. Topsy has a partnership with the specific social medium and it is the only platform that maintains an index of tweets since the beginning of Twitter in 2006. Tweets gathered using the keywords: “chiptunes”, “chiptune”, “chipmusic”, “chip music”, “8-bit”, “8bit”, “micromusic”, and “fakebit”, as well as the same search terms with a hashtag in front (i.e. “#chiptunes”, “#chiptune” etc).⁶⁷ Topsy filtered, organised and demonstrated the above keywords in three ways: a) a list based on geographic activity, grouping tweets by country of (registered) origin, b) a list of influencers, structured considering the number of a user’s followers, tweets and retweets, and c) in the form of a line graph, displaying the comparison between two variables: time accounted in months (x-axis) and number of tweets (y-axis).⁶⁸

Although the Topsy platform can accurately retrieve users’ data, when it comes to finding influencers, one can easily misinterpret results. For example, in a composite comparison of all keywords, YouTube⁶⁹ is found at the top of the influencers list. This is expected, because at the time of information retrieval, YouTube counted 36 million followers, and the number of followers is a factor that determines the impact of an influencer in Topsy. However, this result does not reflect chipmusic activity; 6 tweets with the keyword “8bit” originated from YouTube on 8 August 2013, when “Geek Week”, a collection of videos about videogames, was featured. In this particular context, “8bit” referred to the technology used in early video game consoles, rather than chipmusic as 8-bit music. This particular example demonstrates how quantitative data, and more specifically, Big Data such as tweets, can be misinterpreted. Additionally, in another example previously described in

⁶⁷ The sharp symbol (#) called ‘hashtag’ is used to mark specific topics or keywords in a Tweet. It is a means of organising messages according to a keyword (source: Twitter.com).

⁶⁸ A retweet on Twitter is a repost or forward of a message posted by another user.

⁶⁹ YouTube is a free video-sharing website launched in 2005 on which users can upload, view and share videos.

this chapter, users' registered location may not represent their real place of origin or residence. Taking into account my ethnographic encounters and some content analysis of specific ambiguous tweets, error was calculated in the above findings.⁷⁰

Finally, the last dataset, "Chiptune World Database" is credited to Sycamore Drive (whose real name is Garry Lee), a chipmusician from Glasgow.⁷¹ It is a spreadsheet displaying blogs, live events, designers and pixel artists, visualists, netlabels, inactive and active chipmusicians. For the purposes of the chipscene visualisation, I collected data from the "active musicians" tab and merged them with the "Chiptunes=Win!" dataset.

Three factors were considered for the visualisation of the chipscene network: a) the timeframe of this research, b) the number of countries related to the chipscene, and c) chipmusic activity. The visualisation reflects the chipscene network during the two years that fieldwork was conducted (2011-2013). This is a manageable and observable period which permits a number of changes to settle in the chipscene and create a stable network. The combination of mixed data within the particular timeframe aims at portraying a representative result of the chipscene network. However, it is evident that this visualisation is subject to constant changes due to the dynamic character of the chipscene.

⁷⁰ Content analysis was used to analyse posts in online communities, social media, as well as a number of blogs, websites, articles, online magazines, netlabels, and user comments on Reddit (a social news and entertainment website where content is submitted in the form of textual elements), Bandcamp (an online music store and promotion platform for independent artists), and YouTube. During my studies I found that doctoral students who researched the social dynamics of networked people considered analysing YouTube users' comments as doing ethnography. It is important to note that this is not ethnography; discourse or content analysis is a more appropriate label for this analytical method. Doing ethnography on YouTube – like any other physical or digital place – requires participant observation, and certainly, direct communication with users. As stressed in Boellstorff (2012:67), quantitative information – as for example, derived from word frequency analysis – cannot illuminate issues of social dynamics of online networks in the ways that participant observation does.

⁷¹ Chiptune World Database can be found online on <
<https://docs.google.com/spreadsheet/ccc?key=0AqvPkSwcBDF8dGpTbi0zcWdQTVg3WmRIQkxDZ0UtZ3c&usp=sharing#gid=0>> (accessed 10/3/14).

Thirty-two countries are represented in the specific visualisation: Argentina, Australia, Austria, Brazil, Canada, Chile, Russia, China, England, Finland, France, Germany, Scotland, Ireland, Guatemala, Spain, Hungary, Indonesia, Italy, Japan, Malaysia, Mexico, the Netherlands, New Zealand, Norway, Poland, Sweden, Switzerland, Belgium, Colombia, Greece, and the USA. Chipmusicians in other countries, who at the time of fieldwork had just started expressing an interest in chipmusic without making any significant contribution to the chipscene network, were not included.⁷² The aforementioned countries represent chipmusicians' country of origin or residence.

The final and more complex factor taken into account for a representative visualisation of the chipscene network is activity. Activity is defined as the opposite to the state of idleness. This can be firstly demonstrated by examining social activity such as chipmusicians' interactions in physical and digital places (e.g. collaborations at events, discussions on social media, personal networks). Secondly, activity can be measured by productivity, i.e. the number of releases originating from a particular country. Although activity can be easily quantified, considering chipmusic releases by relying solely on statistics poses several risks. For example, Rockman is a chipmusician from Colombia. His releases are marked as originating from the USA, because he chooses this affiliation as he has been a resident in New York for a number of years. However, Rockman is also active in Colombia. His activity was not demonstrated through statistical data, but was revealed during a discussion I had with him. Throughout this thesis, ethnographic methods have been employed for the normalisation of data aiming to correct similar statistical errors.

Node ranking (size of nodes) is calculated based on a unit that I named 'Impact Factor' (*IF*). Impact factor refers to the effect of a country in the chipscene network,

⁷² It will be interesting for future chipmusic research to examine the chipscene and see whether other countries are added up to the network.

demonstrating how active a country is. My aim is to understand impact factor as a subjective measure, in the same way that loudness is understood. Impact factor is given as a percentage which depends on T :

$$T = (n + r + e) \cdot I$$

where T is the sum of the number of chipmusicians originating from or residing in every country n , the number of chipmusic releases from a particular country r , and the number of chipmusic events in the same country e . T is weighted by the influence I of a particular country to other countries. Influence is calculated on a scale ranging from 0 (no influence) to 10 (maximum influence) based on ethnographic data observed during fieldwork. In this context, influence is seen as a type of communication content, as has previously been examined by Wheeldon (1969, see also Mitchell 1974). Influence is a way to express and demonstrate power in the network. In another context, it may be an individual who forces a connection to a node, passing on information. In the chipscene network, influence reveals the effect of a country over the other ones in the network.

Impact factor is therefore calculated using the following equation

$$IF = \frac{T \cdot 100}{T_{\max}}$$

where $T_{\max}$ is the highest value found in the sum.

For the topographical representation of the chipscene network in Gephi as a graph (the layout of the network) ForceAtlas2 algorithm was used. ForceAtlas2 supports a “spring-

electric” layout using the repulsion formula of electrically charged particles ($F_r = k/d^2$) where F_r the repulsion force, k a constant and d the distance, and the attraction formula of springs ($F_a = -k \cdot d$) involving a constant k and the geometric distance d between two nodes (Jacomy et al. 2012).

In this layout, distance between nodes is relative and depends on forces of attraction and repulsion between the nodes. In ForceAtlas2 the developers’ idea was to bring nodes with less edges closer to very connected nodes (Jacomy et al. 2012) and to prevent disconnected clusters to drift away from the network using the attribute of gravity which attracts nodes to the centre of the spatialisation space (Jacomy et al. 2012). Due to the two-dimensional limitations of metric (Rudin 1953), and more specifically Euclidian metric, no graph with three or more nodes can be represented respecting all the given values between edges and distances. For example, supposing we have three nodes, with distances 1, 1, and 3 (anything more than 2) from one to another. This cannot be represented in two-dimensional space as only two distances can be accounted for at a time.

SNA using Gephi stresses two primary aspects of the chipscene network: a) betweenness centrality (implementing Brandes’ algorithm, 2001), i.e. how often a node falls along the shortest path when connection two other nodes acting as a hub/how influential this node is to the network (Crossley 2015:18), and b) modularity, a community detection algorithm that identifies communities (clusters) in a network) (Louvain Method, see Blondel et al. 2008). The colours depict the various formed communities within each community.

This visualisation of the chipscene network represents a conceptual map of the politics in the chipscene. The size of country-nodes demonstrates how active the chipscene is in the particular area and the edges connecting nodes, reveal which countries are

connected. The ForceAtlas2 layout used in the visualisation places more connected country-nodes closer, presenting them as neighbouring nodes. The visualisation of an online and transnational collective can offer significant insight in mapping both digital and physical places, disclosing how the internet can support continuous interactions on a daily basis between countries that are geographically dispersed.

Summary

The third chapter of this thesis presented the methods employed to collect and analyse data for the study of networked creativity in the chipscene. To understand the creativity, I turn to ethnographic methods and to explore social ties in relation to creative practices, I employ social network analysis. Considering the relative newness of the field, I clarified in detail my research methods. The first part of this chapter focussed on outlining my pre-doctoral experiences with chipmusicians. In the second part I addressed challenges and reasons for my methodological decisions. Thirdly, I presented ethnographic research methods addressing the immersion process, tools and methods, and ethical considerations. The last section of this chapter centred on clarifying social network analysis for the visualisation and interpretation of the chipscene network. Chapter three marks the end of the first part of this thesis entitled ‘Theory and Methods’.

PART II – DEFINING THE CHIPSCENE AND CHIPMUSIC

Chapter 4. The chipscene: musicians and networks

The first part of this thesis entitled ‘Theory and Methods’ aimed at introducing chipmusic, the theoretical and conceptual framework of networked creativity, and the selected methodology combining ethnography and social network analysis. The pair of chapters in part two, entitled ‘Defining the chipscene and chipmusic’ centres on the analysis of the chipscene network as well as the diverse discourses in relation to the creative process of chipmusic that are central to understand networked creativity. Chapter four provides an analysis of the chipscene and the relevant discourses on networked creativity based on ethnographic methods and SNA.

4.1 Walking into the field

Chipmusic like any other musical culture reveals multiple realities in its cultural and social context. There is not a single way of *being* in the chipscene and experiencing the music. Rather, chipmusicians follow diverse flows to create music, disseminate and perform it. While I was in the field, my informants often highlighted the significance of technology for their practices. On one level, what one would call outdated, or even “obsolete” technology is used for music-making. As will be analysed in chapter five, early home computers and videogame consoles represent the primary chipmusic-making platforms. On the other hand, constant changes in music technology enable chipmusicians to compose chipmusic on modern computers too. This technological divide, as will be further explained in the current chapter, generates a clash of ideologies in the chipscene, thus resulting in the formation of diverse discourses with regards to chipmusic-making.

Concomitantly, modern technology is also significant for music circulation as well as computer-mediated communication. In the second section of this chapter I will explain how online chipmusic communities are the primary digital places where chipmusicians virtually meet, discuss, and collaborate – allowing and enabling, though, further interactions and connections that occur in geographically-physical places.

There are diverse social hierarchies in the chipscene with regards to chipmusic social agents' roles. In local chipmusic worlds, there is a division of roles according to one's primary motivation. For example, certain people act as event organisers, or promoters, or, of course, chipmusicians.⁷³ However, these roles are often interchangeable. One can be an event organiser *and* a DJ, while certain chipmusicians are also visualists, who are artists that create visuals that are projected during staged events. In different events, people may have rather different roles – this highlights the multiple levels of creativity in which chipsceners operate. However, in digital places, there is an evolutionary climax – to a certain extent – in roles such as community owners, moderators, administrators, members, visitors, and simple users. For example, a registered member of an online community can become an administrator, gaining, thus, certain powerful rights, such as the ability to ban a member from a discussion thread. Prior to analysing these social hierarchies as I understood them, I wish to introduce the social practices of the chipscene that are particularly useful in demonstrating how chipmusic-related agents understand, negotiate, and communicate creativity across the chipscene network.

The chipscene network can be seen as a collection of ethnoscapes, to use Appadurai's term (Appadurai 2008:50). Appadurai has employed the concept of 'ethnoscapes' to describe landscapes of moving groups' identity (for example, refugees, tourists, immigrants, and

⁷³ On visualists see further on this in chapter six in this thesis.

exiles, *ibid*). As will be analysed below, I distinguished three ideologies in relation to creative chipmusic practices. The three generational ideologies are the basis of a group identity in the chipscene as implied by Appadurai. In addition, certain chipmusicians migrate to other countries for professional or personal reasons; some informants shared with me their stories of romance and friendship in the chipscene, some of which resulted in migration. However, the primary reason chipmusicians are on the move is to perform their music.

On the topic of musicians' networks, Brinner has observed that:

[...] professional musicians are always enmeshed in larger sets of relationships as they join, create, and reshape networks relevant to their musical work. At all stages of their careers they navigate the links that bind them to others with related interests and needs in order, for instance, to find employment and partners for performances. Reputation, musical ideas, fads, and other intangibles flow along the same links, which extend to non-musicians who act as producers, managers, critics, listeners, performers in other media, and so on. The network concept can usefully be extended further to include institutions such as schools, events such as festivals, venues such as particular clubs or concert halls, and artifacts such as recordings. (Brinner 2009:163)

Similar observations can be made for the chipscene network. People navigate constantly between diverse digital and physical places using their network contacts for their creative purposes as demosceners did in the past. In the 1990s, demogroups organised demoparties and competitions in cities they resided in. Once a demogroup would plan the event, they would advertise it online, where other demogroups were invited to the party to demonstrate their work, and compete against each other. The demoscene was primarily a European computer scene. As one of my American informants highlighted:

[About Europe] as far as we know here, supposedly the demoscene has gotten a lot of praise as being an originator of this concept, but in reality, we are pretty disconnected from them. (Roger Cruz interview, 2013)

Additionally from the perspective of Japan, as Quad from the sound studio *luvtrax* explained:

Japan doesn't have much interest in demoscenes like Mega Demos. I think the origin of chiptune culture emerged from that environment. In Japan, hardly anyone knows about Amiga Mega Demos. It has always been a cultural import. (Quad interview at GameSetWatch, 2008)

My informants in Europe highlighted the significance of the demoscene for their practices, while this was not strongly communicated by informants in other continents. As

one of my informants from France illustrated, the demoscene is a Scandinavian product, “the *only* great discovery they have made along with Nokia in Finland” (Anonymous informant interview, 2011).

Videogame music also has an impact on chipmusic and chipscene practices. My informants often referred to Japanese or European videogame music composers’ work who influenced their musical style. However, they contend that chipmusic is not videogame music. Even in Japan, where the videogame music scene is prominent due to the history of videogames in this country, there is a clear division between the two worlds. As Kuske, from the Japanese chiptune band Kplecraft has stated:

[...] in Japan videogame enthusiasts and chiptune enthusiasts mix like oil and water. I know people that frequent both events, but they belong to different crowds. In Japan it feels like there are many barriers to integrating these genres and uniting these different fanbases. (Kuske, interview at GameSetWatch, 2008)

Although there are chipmusicians who attend and perform at video gaming events, such as Anime Conventions, most chipmusic events do not address gamers or even, videogame music fans. What is important to highlight though is that in recent years, some change in practices has been observed; as one of my USA-based informants has argued, a substantial crowd from OCREmix.org, a video game music collective, has gradually developed an interest in chiptunes.

In the chipscene, chiptune parties are not competitions as one finds in the demoscene. Rather, they are events that feature performances, and sometimes other creative activities that participants are involved in, such as chipmusic-making workshops.⁷⁴ The purpose of parties and festivals in the chipscene is related directly to the experience of chipmusic, whereas that involves listening, performing, and dancing to music or creating musical instruments and chiptunes. I understood these events as opportunities to experience

⁷⁴ My intention here is not to analyse events and musical performance. For this, see chapter six in this thesis.

chipmusic worlds and establish social ties. Chiptune parties are organised locally – they are planned and initiated by people who are fond of chipmusic, whether they are composers or not. I met several event organisers while conducting fieldwork but Jérémie Glafouk stood out as he has been involved in the chipscene since its early days and gave me a holistic perspective on the chipscene. During the 1990s and early 2000s, he organised several chipmusic parties in Paris.

Jérémie became one of my key informants in Paris. He works in the computer science sector and lives in a one-bedroom apartment near Gare de Lyon. During the years of fieldwork I found France to be a key hub connecting European chipmusicians. Firstly, due to its geographical location and accessibility by all means of transport, European chipmusicians travelled to Paris for every event I attended. In addition, French chipmusicians are particularly connected with neighbouring Francophones (Belgium and Switzerland). Although English is the primary language used in the chipscene, when several internationals are present, similar connections on the basis of language are traced between several other countries (for example, Netherlands-Belgium, Spain-Guatemala-Colombia). Furthermore, I found a similar pattern between languages of the same family.⁷⁵

Jérémie's small apartment has become the temporary home for several chipmusicians who visited Paris for his events. His bathroom was colourfully decorated with bits and pieces such as bus, train, metro tickets, as well as flyers from chipmusic events from around the world that he and his guests would bring (image 4.1). As he explained, not everyone understands the spirit of the chipscene – to meet new people, support the scene, and have a good time. Jérémie told me that certain chipmusicians adopted different communicational

⁷⁵ As Javier, the director of *Europe in 8 bits* expressed, although he does not speak Italian, when he is in Italy he can easily communicate using a mixed language using Italian and Spanish. One way he does this is by altering some verb endings of Spanish verbs that are similar in Italian.

practices and had high expectations, asking unreasonably high fees to be paid for their performing services and demanding expensive hotels and luxurious treatment.



Image 4.1. Detail from Jérémie's bathroom in Paris.

Jérémie's discourse defined hospitality as a key feature in the chipscene, echoing the Southern European notion of hospitality as explained by Herzfeld (1987) and Hirschon (2008:576). In the chipscene, hosts invite guests, and a sense of openness, "as in your own house" is supported. While I occupied Jérémie's living room, I was encouraged to feel free to use anything I needed. His friends who visited were not alarmed by my presence; they seemed accustomed to this. I received the same treatment anywhere I lived – Spain, Italy, Belgium, England, among other places – to the point that after six months of travelling between places I stopped feeling uncomfortable and believed that my presence did not severely affect my informants' lives. My informants also suggested that the same sense of hospitality is a common practice outside Europe, as well. For example, whenever European chipmusicians have travelled to the USA, Indonesia, Japan, Australia or other places to perform, local chipmusicians and event organisers offered them accommodation.

In the habitus of the chipscene, a host invites someone or a visitor may ask for hospitality well in advance. If the host has available space, then it is arranged. If not, the host inquires within their local network if anyone has “floor space for a fellow chipmusician to crash”. In some other cases, however, as it once happened to me, hosts offer accommodation on the spot. During one of my impromptu visits in Paris for an event, I did not arrange accommodation with any chipmusicians or hostels. When I talked to Javier, who was filming at the specific event, he asked me where I was staying and I replied that I did not know. He kindly offered me ‘sofa space’ in an apartment that belonged to one of his friends who was away and he was staying with the rest of the Spanish filming crew.

After the event finished at six in the morning, I left with the filming crew and navigated around Paris to reach our destination. Part of me was concerned about this openness – after all, it was early morning, I was in a foreign city to me, with people I barely knew, going to someone else’s apartment who did not know me at all. We arrived at an architecturally typical five-storey Parisian building without elevator and headed for the fourth floor. Once we entered the building, Javier directed me to the living room where I could sleep. I shared the room with Bart, who was exhausted from the long day (they had been filming from 14:00 until 5:00 am). Such a day was common in the field, with some minor adjustments – sometimes we did not use public transport, rather, we were driven from place to place by locals. The chipscene hospitality habitus assumes a sense of trust from both parties, and the connection through the chipscene is enough to seal this. Chipmusic is a passport, or even better, a password that connotes safety for anyone involved.

To extrapolate the concept of safety, the word ‘family’ is rather prominent in chipmusicians’ narrative in Europe, and particularly in Italy, Spain, and France. There are several examples in literature underlying the significance, role of family relations, and their

implications in Italy, Spain, France and also, generally in Europe.⁷⁶ While talking to chipmusicians in Europe I was given the impression that the ‘micro-family’, as they called themselves, is an intimate network of people.⁷⁷ During the two years of fieldwork, I saw this term gradually becoming frequent in Europe, and the micro-family reminded me of practical kinship as explained by Bourdieu: chipmusicians create representations of kinship in everyday situations in order to “get things done” (Bourdieu 1977:34) and although there may be no blood relation, chipmusic becomes a link that constitutes family. However, the micro-family is as fragile as the chipscene network, so membership is not assumed to be for life. It is worth noting that as I was leaving the field, I noticed that discourse on family was slowly used in the USA, as for example in the case of the ‘chip-mom’, Erin McQuisten, at the Chiptunes=Win! blog.

The production of chipmusic is mostly done at home. The domestic space is usually characterised by technological means – primarily any type of computer, old or modern (image 4.2). One needs to possess the relevant music-making technology. Technological or computing skills are not a prerequisite, rather this is a set of skills that chipmusicians constantly develop. The creative process varies but is not significantly different than other popular or electronic music-making process; certain chipmusicians start with melodies, while others prefer building rhythm sections.

⁷⁶ See relevant literature for example, in Italy, the controversial study of Banfield 1958, and from an anthropological perspective Tentori, 1972, Kertzer and Saller 1991, in Spain, Roseman and Parkhurst 2008, in France, Pedersen 1995, and in Europe, Birdwell-Pheasant and Lawrence-Zúñiga 1999.

⁷⁷ Chipmusicians often referred to their direct network contacts as ‘brothers’ and ‘sisters’, thus expressing a sense of intimacy in terms of the micro-family. The concept of ‘bromance’ (brother romance) was also used by certain chipmusicians to describe intimacy. As Xylo, one of my informants in the Netherlands highlighted: “[At events] we meet, drink beer, have a bromance (laughs) that’s what happens, especially when you’re drunk! Because most of the times we sleep at each other’s floors.” (Xylo interview, 2012)

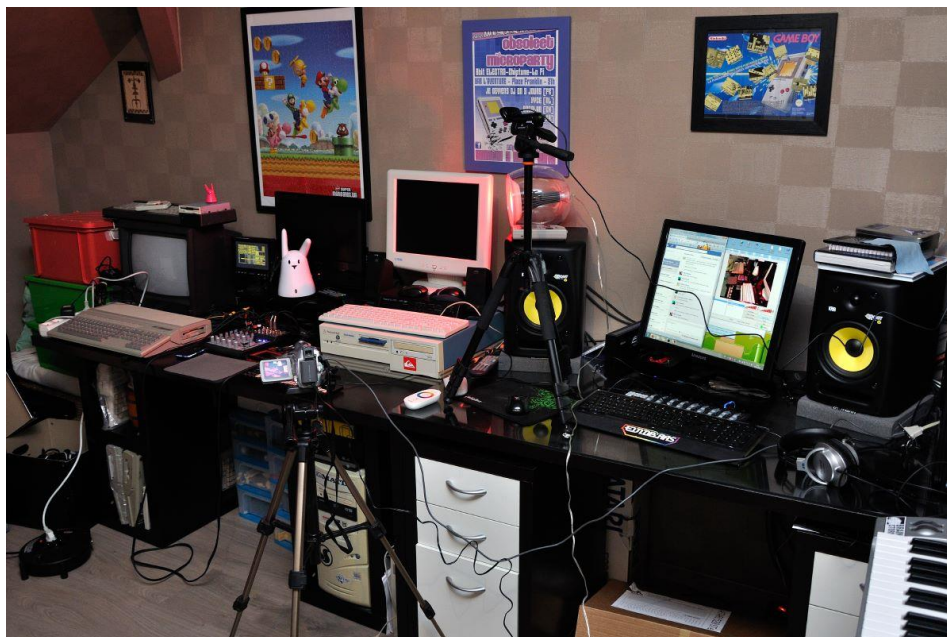


Image 4.2. Ultrasyd's home studio.

One can create several musical styles by using chipmusic-making methods. As Ultrasyd explained:

It's about taking the most out of the little chip. I think it's not only about music, or sound, but also when you can manage to make something good like make people dance. Chiptune can be everything, jazz, metal, bossa nova, whatever... (Ultrasyd interview, 2012)

In general, making chipmusic can start as an individual activity, which will result in the production of a chiptune. Then, this is disseminated online, where it has the opportunity to become a distributed cultural object, to echo Born's concept (2005). As a distributed object, the chiptune can be remixed, edited, or otherwise explored creatively (e.g. by adding visuals) by other chipmusicians.

There are also several people who collaborate from the initial stage, such as Xyce, the group project of Xylo and Cerror from the Netherlands. As Xyce specified:

We met online, at a Dutch forum. He [Cerror] knew I made music like that and asked some questions. Then we had this idea, "let's make something together". I moved to Groningen, the same town as where

he lived, for my ICT education, and made albums together. That was match-making made in heaven because we like the same style, nice melodies. [...] When we make music together it's great because when I'm stuck, he can help, and when he's stuck, I can help. (Xylo interview, 2012)

Xyce's collaboration is a layered process in which one begins with an idea that is further developed by both:

I wake up, I go to school, and come at home, and maybe if I have some energy to make music, I do it. But most of the time, during the weekends, he [Cerror] visits me at home. Over the week I may have had a core idea stuck in my head, and I just write that. And then he comes along and says "oh I can do that with this bass line or this drum". Then he makes the drums and the bass and then we add chorus. He makes something, I make something. It's mainly during the weekend. During the week I have a normal life, this is just a hobby. (Xylo interview, 2012)

One of my starting points when thinking about the social organisation of the chipscene was to examine its infrastructure. How is the chipscene funded and what needs to be in place for chipmusicians to compose and disseminate their music in the chipscene network? Roger Cruz explained to me that usually there is no funding for any events and that event organisers make a deal with bar owners, based on percentages of ticket sales (Roger Cruz interview, 2013). As previously explained, performers stay with their hosts and there are several collaborations into place (for example, between visualists, sound engineers, and chipmusicians). Rarely, event organisers apply for governmental funding, as for example SuperByte organisers did in the UK, whose application to the Arts Council was successful.

In terms of staged performances, I observed that some festivals which are associated with specific countries also took place in different areas.⁷⁸ For example, Eindbaas, the Dutch chipmusic festival based in Utrecht has toured around cities in the Netherlands but has also been featured in festivals in New York and Melbourne. In practice, the etiquette 'Eindbaas'

⁷⁸ Instead of using the problematic term 'live' performances, I adopt the term 'staged' to describe musical performances that take place during parties or other chipmusic events. See further in chapter six in this thesis.

in other festivals meant that the Dutch organisers and some chipmusicians associated with it (living in the Netherlands) were guests at the festivals in the USA and Australia. In addition, Blip Festival, a North American chipmusic festival that used to take place annually in New York, has also toured to other countries such as Denmark (2009), Japan (2010-2012), and Australia (2012). This appears to be a marketing tool that promotes cultural diversity in chipmusic events, whilst supporting the relations between particular countries and chipmusicians.

Event and chipmusic releases' promotion is primarily done online using social media (such as Facebook and Twitter), online communities, and e-mailing lists (Roger Cruz interview, 2013). The direct involvement of chipmusicians in the promotion of their activities removes the social barrier that exists. Chipmusic is not a kind of mainstream popular music. However, there have been attempts to establish chipmusic as mainstream electronic music, as for example in Indonesia. During the 2000s, Curahmelodiamandiri and Guttersnipe established the scene by sharing the music and motivating people to compose chiptunes. As they highlighted, "We have a problem in Indonesia, people tend to be passive rather than active. We want to be the motivators for change...Music gives people a sense of identity." (Anning 2008). The chipscene started growing in Indonesia which sparked the interest of media, as my informant Roger Cruz explains:

The mainstream media from Indonesia assumed it [chipmusic] was another mainstream fad so they started covering it as if it was mainstream in the rest of the world. There were radio stations including chiptunes into big performance shows, [...] music producers looking into big investments to produce chiptune records. (Roger Cruz interview, 2013)

For a few years, the Indonesian chipscene flourished; festivals such as Pesta Mikro were established, open street parties became more popular, chiptune samples were used in other local pop music genres, and an influence that sparked creative action in other countries was observed, such as Malaysia, where chipmusicians looked up to the Indonesian paradigm.

However, such effects have not been seen in any other countries, where there are some rare mainstream explosions of co-opted 8-bit samples in pop songs.

Funding in chipmusic worlds is also a creative process which is realised through crowdsourcing.⁷⁹ Chipmusic targets the niche market, which consists of other chipmusicians and chipmusic enthusiasts. Crowdsourcing is widely used in the chipscene even for non-chipmusic related projects. One such example was the Chipmusic Japan Disaster Relief (22/3/11). The primary fundraiser, Pixelh8, a chipmusician from England, put together a compilation of chiptunes donated by other chipmusicians to help raise donations for the people of Japan following the disasters of the 2011 earthquake. As he highlighted, “If it wasn’t for the hard working people of Japan there would be none of this great chip tune music in the first place.” (Pixelh8, Chipmusic Japan Disaster Relief, 2011). Crowdsourcing has also been useful in funding online chipmusic communities such as the 8bitcollective, NoiseChannel and µCollective. In addition, online chipmusic communities also depend on merchandise sales (particularly, NoiseChannel and µCollective).

The last topic I will discuss in this section is gender. The chipscene as previously illustrated, is predominantly male-dominated. As a woman, I never received special treatment in the chipscene, nor was I patronised. I did not observe any negative connotations on gender relations during events or participant observation. Every detail assumed that men and women lived happily in the chipscene regardless of their sexuality, race, or class. When I asked my male informants about women chipmusicians, they all expressed their admiration for several women in the field. In addition, when I spoke to female informants, they were

⁷⁹ Crowdsourcing functions on the basis of donations. Any internet-user can pledge to support a campaign, and in return a number of perks are offered depending on the amount of donated money. For example, I donated 40€ at the *Europe in 8 bits* crowdsourcing campaign. In return, I received a DVD of the documentary and a T-shirt. Similarly, at the *Chiptography* campaign I donated \$100 and I was offered a print and electronic version of the book, pins, a CD with chiptunes, as well as special mention in the acknowledgements.

keen to delve into the specifics of chipscene unity and support. In all, there were no dissonant voices.

It was only towards the end of fieldwork that I found out about two incidents and I was able to experience gender dynamics from a different perspective than I had during the course of fieldwork. In November 2013, Chipzel, a female chipmusician from Ireland, posted a public status update on Facebook complaining for sexist treatment she received from Noise Channel founder, Freque. In her status she mentioned “he’s always treated me like I was below him and constantly made sexual innuendos” (Chipzel, Facebook status update 14/11/13). When I spoke to Chipzel regarding this event, she explained that this was something she only experienced at Noise Channel and that this incident does not reflect chipscene ideology at all (Chipzel interview, 2013). To this day, I still do not have any other information to regarding this argument and it seems that all public complaints regarding sexism were attributed to the particular chipmusician.

At the same time during online fieldwork, the group LGBTune was established on Facebook. This was an open call for any Lesbian, Gay, Bisexual, and Transgendered people who compose or enjoy chipmusic. During the first two days of the appearance of the group, more than fifty people joined. They started sharing their experiences in public: how they found out they are L/G/B/T, what the reaction of their family and friends was, and how chipmusic helped them express themselves and feel comfortable with any identity they choose to perform at any given moment. The chipscene appeared as an open space for expression, that any form of identity is accepted. Few days later, a post entitled “chiptuners against homophobia” appeared with some comments on homophobic attacks on online communities.

I asked the person who uploaded this post about homophobic events in the chipscene. She confided in me her experience in 8bitcollective.org and her general sentiment about this matter:

People seemed to have no issues with throwing around a ton of homophobic slurs (at least towards homosexual males), and made a lot of lesbian-oriented jokes (thus perpetuating double standards for parallel homosexuality). Basically, it got to be a serious issue, and mods [moderators] stepped in, and threw down the banhammer for lots of members. People got whiny when they were banned, and then there were a ton of LGBT-oriented folks who stepped in. Then, this photo happened [“Chiptuners against homophobia”], and never again were any homophobic slurs ever mentioned again before 8bc’s demise. (Anonymous female chipmusician, interview, 2013)

Moderators banned several 8bc members for their demeaning comments, and as my informant explained, this oppressive type of behaviour annoyed many. Banning is the ultimate penalty one can receive in an online community as this restricts access. Following incidents of homophobia in 8bc, a group of chipmusicians interested in LGBT issues created a picture based in pixels, depicting a gay rainbow flag in black background and a white inscription “Chiptuners against homophobia” (image 4.3).



Image 4.3. The image “Chiptuners against homophobia”.

According to my informant, ‘drama’ was then resolved only to appear in other online communities:

The problem in the chipscene is that the collective of people in the scene are almost identical to any other field that tends to be male-dominated. A few females here and there, mostly guys, and an “aurora” of homophobia. Or to put it lightly, gay jokes (but mostly towards men, because apparently, gay men are weak because they supposedly take it – whatever that is – in the butt and they are just asking for it). I don’t get it either. So the same social cliques that are present outside the chipscene, are, unfortunately, present in the inside as well. I hate to say it, but this nonsense also occurred for a bit in cm.o [chipmusic.org]. (Anonymous female chipmusician, interview, 2013)

I did a basic discourse analysis on all online chipmusic communities I had access to and I found that the word ‘gay’ is often used in a derogatory fashion but also, as a means to comment on a weak action in an ironic manner (i.e. “oh you didn’t go to that event? That’s *so gay!*”). My estimation is that such incidents of homophobic misbehaviour online reflect similar examples in the offline world. To a certain extent, they are attributed to teenage ideology which is often associated with computer subcultures (see for example Kendall 2011). But as a number of internet researchers have observed (see for example, Markham and Baym 2009, Boellstorff et al. 2013), there is an interconnection between online and offline divides, and LGBT issues are not an exception. In addition, this argument is in line with discussions (as for example in Papacharissi 2004) on verbal attacks and manipulation in online communities that promote cyber racism and sexism. In the online realms of the chipscene, the lack of physical presence waives the significance of such comments. However, it would be significant to observe whether in time, such expressions will transcend to behaviour in the offline world.

Reflecting on the aforementioned practices and specific incidents in the chipscene, there are two key points I wish to sum up here. Firstly, social practices underline the significance of technology for chipmusicians and chipmusic social agents. Technology is entirely embraced and mediated in the creative process and also communication, music circulation, and means of social transformation – the latter point will be further outlined later in this chapter. Secondly, the incident regarding queerness suggests that infrastructure is not entirely neutral. Rather, it reveals important tensions in the working of these online-oriented

social networks, despite the rhetoric of hospitality, family, and radical openness. This is a point that I examine further in chapter six when analysing performativity in chipmusic.⁸⁰

4.2 Digital places: an ethnographic analysis of oral discourse

At different moments in chipmusic history since the 1980s, several digital and geographically physical places prevailed over others. In this section I aim to discuss digital places of the chipscene, and more particularly, how the discursive context of ideas that govern creativity is formed. This section is primarily an interpretative account of my informants' narratives, who recounted a history of the chipscene and chipmusic as they experienced it.

4.2.1 Foundations and drama in micromusic.net and 8bitcollective.org

During the first days of the chipscene, chipmusic was made available for free online via netlabels.⁸¹ One can define netlabels as non-commercial organisations of the digital market that function as online platforms of freely shared content. As Merz (2011) underlines, 'free' in the context of netlabels means that the musical work is available without payment, but there are still restrictions and limitations. The selection of artists on netlabels is done by a curatorial group whose actions are similar to A&R (Artist and Repertoire) departments of record labels (ibid). Netlabels' emergence echoes Sundén's (2003) assertion that online existence is inextricably linked to textual embodiment ("write ourselves into being").

⁸⁰ In chapter six I will demonstrate how discussions that cause tension are often avoided as such arguments do not empower the connectedness of the chipscene network.

⁸¹ Netlabel, abbreviation for 'Internet label'. For an extensive analysis of netlabels see Hartmann 2004 and for netlabels in the chipscene and demoscene specifically, see Merz 2011.

Netlabels allow this form of textual, immaterial embodiment online as they are a platform where musical works are published.

Micromusic.net is the first netlabel that released chipmusic. Although it was conceptualised in November 1998 as project “futurelab” by Gino ‘Carl’ Esposto from Zurich, Switzerland, and Michael Burkhardt from Basel, Switzerland, it was not until August 1999 that it was launched online (Burkhardt et al. 2001, Carlsson 2010:10). During the first two years of its existence, micromusic.net counted more than 3000 registered users, and as Carlsson explains (2010:10) this was a phenomenal number for an online community at such an early stage of the World Wide Web’s evolution. In the offline world, several user-organised regional micromusic headquarters (microHQ) appeared in Europe, N. America, Oceania, and Asia, where chipmusic events and workshops take place.⁸²

Micromusic.net met a dual purpose. Firstly, it functioned as a netlabel and secondly as an online meeting place of chipmusic-related social agents. The website uses a simple-looking colourful interface, with some pixelated visuals and graphics which remind of 1980s videogame aesthetics. Upon registration, one can indicate a username and password of one’s choice, disclose personal information such as location or contact information, as well as select a musical style from the following categories: “foxy”, “hopeless”, “bored”, “bitchy”, “no style”, “funky”, “relaxy”, “spooky”, “fucky”, “sexy”, “lovely”, “worky”, and “sporty”.⁸³

⁸² Matt Earp (2005) specifically mentions microHQs in Los Angeles, New York, London, Newcastle, Stockholm, Brussels, Paris, Berlin, Basel, Zurich, Melbourne, Enschede, and Tokyo. The maximum number of organised events in various microHQs was in 2009 (197 events globally. Source: micromusic.net). The year 2009 was particularly significant for micromusic.net as the Dutch microHQ website micromusic.nl was launched. This was later renamed into ‘Eindbaas’ and the Dutch HQ became home to the largest homonymous chipmusic festival in Europe. The launch of micromusic.nl marked the highest activity on Twitter using the keyword “micromusic” (70 mentions out of a total 1321 in a seven-year period, see figure A.3 in appendix). It is worthwhile mentioning here that a large number of Tweets on “micromusic” refer to a video release of a concert by British musician and composer Gary Numan (*Micromusic – Live at Wembley*, 1981).

⁸³ While listening to a chiptune online, a pixelated moving image (graphic) accompanies the listening process. There is a different graphic for every style; every graphic visually depicts the action that this style suggests, making references to popular videogames. For example, “worky” style is represented as a construction of a building where blocks descend in a similar manner as in the *Tetris* (1984) game, whereas “sporty” style features

There is no further explanation as to what every category means on micromusic.net. However, it is up to the user to select any category for their music, whether it refers to their composed chiptunes or their musical preferences.

Micromusic.net motto “low-tech music for high-tech people” stresses the dual distinction between high and low technology – a rather binary logic, a premise upon which early chipmusic was originally composed. In order to publish music on the micromusic netlabel, one can upload their chiptunes on the appropriate section of the website (*up-/downloadz*). As clarified in the frequently asked questions:

login to micromusic, choose up-/downloadz (sic), then click on “upload file” and follow the instructions there. it may take up to 2 month (sic) until tracks get rated by the quality filter system (qfs). please note that we only hype tracks that are approved by the quality filter system!

The “quality filter system” is not a computerised, web-integrated system of analysis (see also Guriunova’s chapter regarding Micromusic.net in 2012:98).⁸⁴ As Carlsson explains, micromusic.net primarily featured user-generated content, but the selection of uploaded chiptunes was made by an “anonymous jury at the site, therefore maintaining a certain stylistic coherence” (Carlsson 2010:10) – in other words, the curatorial group as netlabel etiquette suggests.⁸⁵ Two of the criteria of “quality filtering” are disclosed in a section of the site entitled “micromusic concept”: “[...] and we always keep focused on one thing: the highly addictiv (sic) computer game soundz (sic)” and also, “fuck *ProTools*! start tracking!”. From these statements, in order for a chiptune work to be released by the micromusic netlabel, it should make sonic references to computer games and their music –

a sequence from the game *Pong* (1972), showing a ping pong game between two players who are minimally represented as lines playing with a square (pixelated) ball.

⁸⁴ The quality filter system (QFS) is animated as a moving icon which depicts a pixelated, computerised drawing of a meditating Buddha-resembling figure listening to music (visually expressed with a quaver note) with headphones. The figure smiles and shows a gesture of thumbs up to approve of a chiptune, or frowns and gives a thumbs down to fail an uploaded musical piece.

Source: <http://www.micromusic.net/micromusic_tools/microuploadz/show_qfs.php3> accessed 3/6/14.

⁸⁵ User-generated content on micromusic.net includes discussion threads *microtext*, pictures *micropix*, chiptune releases *up-/downloadz*, music tools for chiptune composition *microwarez*, links *microlinkz*, a list of chipmusic events *microeventz*, and maps *micromaps*. Other features of the website are an online radio which mixes and streams users’ chiptunes.

however, there are no guidelines on how this can be achieved – and it should be a composition created on music trackers rather than a musical piece composed on *ProTools* or any other Digital Audio Workstation (DAW).

Bearing in mind micromusic.net's motto, low-tech music, then, refers to music produced in low fidelity (lo-fi) music-making platforms. Additionally, the high-tech individual is someone who is efficient in music tracking, using lo-fi computers. Realising this, one would expect that demosceners – the predecessors of chipmusicians – would be the target group of micromusic.net, as they were prominently creative in exactly this: coding music in trackers using low technology computers. However, Carlsson observes that micromusic.net reflected more a “punk, do-it-yourself ideology” rather than the technical expertise which demoscene demanded (Carlsson 2010:10).⁸⁶ This argument on micromusic ‘punkness’ is particularly supported by two characteristics of micromusic.net: a) the fact that all content was user-generated (with the appropriate quality filter system moderation) and b) that any user can potentially ascend social hierarchy on a participation scale ranging from level 1 to 100, namely changing status from “user/nerd” to “micromusiccrew”.

There is an interesting twist on how elements of punk culture such as do-it-yourself ideology, free and shared published content, and openness became synonymous to threat in micromusic.net and consequently, in the chipscene. In the first instance, the threat was personified. In 2003 Malcolm McLaren, the former manager of Sex Pistols and an instigator of the punk movement in the UK, published an article entitled ‘8-bit punk’ in *Wired*. In his article, McLaren claimed to have discovered a new world of digital music which resembled punk because it had the potential to re-invent modes of digital music; a new genre which can be considered as “folk music for the digital age” (McLaren 2003). He narrated how he learnt

⁸⁶ For a closer examination of punk ideology, see Laing 1985, Savage 2005, and for the post-punk movement see Hesmondhalgh 1997.

about chipmusic-making at a secret location, a dark factory in Paris, and explained how chipmusic embodied all his ideas about independent from corporate technology, music-making: in a nutshell, “Fuck *ProTools*” ideology. His article was ill-received by the micromusic.net community.

There are several reasons as to why ‘8-bit punk’ and McLaren himself appeared as a threat. Firstly, the primary reason was his claiming ownership of chipmusic without acknowledging chipmusic history as well as the existence of an online and transnational, organised collective of chipmusicians that had been active for years before his discovery. Secondly, he made tactless remarks on chipmusicians, whom he saw as a lost tribe of videogame hackers – “the Nintendo generation” (McLaren 2003). He comments on their appearance, portraying them as dreadful figures whilst characterising them as penniless musicians who oppose to corporate technology because they cannot afford it. In all, for McLaren chipmusic was a new phenomenon which was about to begin its course and it represented a mythological world structured upon secret or well-hidden knowledge. And as far as chipmusicians were concerned, they were perceived as *bricoleurs*, to use Lévi-Strauss’s (1966) terms: ‘savage’ people who tinkered machines. As McLaren’s descriptively put it “the insides [of a Game Boy] must be scrambled” before making chipmusic.

McLaren’s account was thoroughly discussed in micromusic.net and was deemed offensive by chipmusicians. Following similar claims in mainstream media by McLaren, gwEm, a chipmusician and micromusic.net crew based in London, addressed a public letter to McLaren.⁸⁷ In his response, gwEm underlines all the above points that McLaren makes and attempts to correct them. The main argument, stressed in gwEm’s letter, refers to the existence of chipmusic since the 1970s – even before punk was invented, as gwEm

⁸⁷ gwEm’s letter is available on micromusic.net: <http://micromusic.net/public_letter_gwEm.html> accessed 3/6/14.

underlines – and the emergence of micromusic.net as a chipmusic community since 1999. Additionally, he refutes the idea that chipmusicians are a lost, primitive tribe, while raising awareness of chipmusic presence online. gwEm’s third point is that often, chipmusic can often be rather expensive to make – if for example, one buys the appropriate cartridges for Game Boy consoles – and contends that the cheapest way to compose chipmusic is on any modern computer one owns, with free software available on micromusic.net.⁸⁸ Before asserting that the chipscene does not need McLaren in order to become popular, gwEm makes a rather interesting remark on McLaren’s statement that chipmusic is composed on hacked videogames: “This is entirely untrue, making chip music is far from hacking into video games, and does not require such a detailed technical knowledge” (gwEm 2004). In his response, gwEm explains that making chipmusic can be easy when using the appropriate software, but creating this software demands programming skills rather than a talent in tinkering.

The primary issue here is the association of chipmusicians with *bricoleurs* rather than *engineers* – to refer back to Lévi-Strauss’s terms (1966). McLaren identified chipmusicians with the savage rather than the scientific mind, picturing them as tinkerers in a closed universe, where the creator-bricoleur can only use materials available in this space. However, in gwEm’s narrative, it becomes certain that the universe of chipmusicians is open as they can create new tools and materials by programming from scratch anything on their digital workstation. From gwEm’s account, one can conclude that chipmusic should not be understood as myth, rather, as reason depending on ‘scientific’, logically structured information which is available to everyone.

⁸⁸ After the popularisation of chipmusic in the 2000s, chipmusic-making software compatible with modern computers using Apple, Linux, or Microsoft operating systems was developed. This software in certain cases, was even available to use with *ProTools* and other DAW. However, in this digital interface, chipmusic-making software functions as a primary tool for chipmusic composition. The DAW acts as a host for the additional software – a recording platform.

Although there are certain ideological clashes between McLaren's and the chipscene's discourse, as these were outlined above, my understanding is that there is an underlying pattern that one can observe, similar to other 'threats' that appear. When such incidents occur, I found that chipmusicians tend to group and to negotiate their collective ideology. In some respects, these eventful cases are more significant in expressing and demonstrating the connectedness of the chipscene network. Differences and arguments can only weaken the connections of a social network as I will further explain in chapter six. Thus, incidents that present any threat to connectedness become a means of re-establishing collective ideologies.

Another kind of threat for micromusic.net is related to digital openness. Micromusic.net is an open community even to non-registered users. Any internet user can log in for fifteen minutes as a guest and have access to the downloadable chiptunes released by micromusic. Every micromusic.net netlabel release is a digital gift which is offered for the sake of sharing chipscene culture – it is a method of dissemination of creative works but more importantly, a way to advance chipscene knowledge, embracing the philosophy of free culture, particularly as outlined and defined in Lessig's work (2004), aiming at developing creativity. This free gift-giving practice suggests trust and mutuality among chipmusic enthusiasts and consumers. However, such values and beliefs are not shared by all internet users.

Following the popularisation of chipmusic after the 2000s, a number of allegations of music plagiarism appeared on micromusic.net and other online communities that were established by that time. Musicians around the world used samples of chiptunes – or in some cases, chiptunes in their entirety – without seeking permission by or even, acknowledging

the original creators. There are several cases on intellectual property (IP) theft based on copyright infringement and as IP legislation varies globally, it may take years to settle a transnational case. One of the most prominent cases of music plagiarism on micromusic.net was Fitts For Fight, a Norwegian band (incidents during the period 2005-2007). As explained in chapter seven, music plagiarism is frowned upon in the chipscene, and the practice of public shaming is performed.⁸⁹ This is yet another way to publicly demonstrated connectedness against these threats. In micromusic.net, a webpage was set up by gwEm, outlining the allegedly stolen songs, their original creators, and the netlabel they were originally released in.⁹⁰ At the bottom of the webpage there is a statement:

Although micromusic is a totally open non-profit organisation it represents and protects its members just as a normal record label.

With this statement, micromusic.net netlabel's stance is similar to the general practice that any other record label would take in order to protect its musicians. This event explained here is also related to ownership – reinstating the truth about a composer's identity in public, disallowing all false ownership claims.

In 2004, Jose Angel Torres, a high school student from New York, launched 8bitcollective.com/8bc.org.⁹¹ The identity and purpose of this online community were defined in the frequently asked questions section of the website:

8bitcollective is the first completely open chiptune-related media repository and file sharing community. We love chiptunes. We want more people to make chiptunes and we want more people to listen to chiptunes. That's why anyone can upload or download their chiptune-related media at 8bc.org.

⁸⁹ See chapter seven for the phenomenon of 'chiphate' as well as the 'Hall of Shame', a section available on almost every demoscene and chipmusic community online.

⁹⁰ The webpage is available on < http://nl_hq.micromusic.net/stolengoods/ > accessed 4/6/14. The allegedly stolen chiptunes were released primarily on micromusic.net netlabel. However, Fitts For Fights were accused of plagiarising chiptunes released in other netlabels such as 8bitcollective.

⁹¹ 8bitcollective appeared firstly under the domain music.gameboymall.com (Yabsley 2007:14, Carlsson 2010:11).

From the term “micromusic” previously used, there is now a transcendence to “chiptunes”. Carlsson suggests that this change was due to the popularity of a Japanese chipmusic news-site, VORC.org, where the term was broadly used. With 8bitcollective, “8-bit” also becomes a popular metonym and thereafter as explained in the following section of this chapter, the term “chipmusic” or “chip music” gradually comes into play.⁹²

In relation to micromusic.net, 8bitcollective (8bc) was characterised as more democratic (Yabsley 2007:7) because it allowed anyone to express their creativity publicly by uploading their audio, video, and images. All uploaded content was licensed under a BY-NC-SA Creative Commons Licence.⁹³ Unlike micromusic.net, the only judgement and word of approval or disapproval was offered voluntarily by other members of the community in the form of comments underneath the uploaded item. The website supported a rather minimal environment, incorporating white background and black fonts, blended with pink fonts. The colour pink matched the famous logo of the 8bc which depicted pink laurels and above them, a bouncing 8-bit-designed version of the grey classic version of the Nintendo Game Boy.

The hierarchy of 8bc was structured in groups of members, moderators, and administrators, with the latter having the utmost power to perform any activity on the website. 8bc code of conduct also referred to as ‘netiquette’ was explained on the community’s Wikipedia webpage, where information on the guidelines regarding behaviour and conduct was published, along with a description of the music that was allowed to be uploaded. There was no information regarding “quality” or “aesthetic criteria”. Rather, any

⁹² VORC was established in 2001 as a website containing “daily news about old-school video game music and chiptunes”. Two kinds of music were of interest for VORC: videogame music and chiptunes. This division is particularly interesting coming from a Japanese site.

⁹³ According to the BY-NC-SA licence, the published work cannot be used for commercial purposes, unless the original author consents. However, redistribution of the work is permitted as long as there is a link to the originally published webpage. Similarly, derivative works may be made, provided there is a reference to the original work and the new work is released under the same licence. Creative Commons (CC) licences in chipmusic will be further explained in chapter seven.

chiptune, composed on any platform was permitted. This also included hybrid musical pieces, which combined 8-bit sounds, vocals, and other musical instruments of any kind. Members had the opportunity to upload their music, give feedback to other chipmusicians' work, and participate in discussion boards.

The community soon became popular, featuring more than twenty chiptune uploads on a daily basis (Carlsson 2010:11). Membership numbers increased rapidly and according to Torres, 8bc counted in its history over 50000 registered users.⁹⁴ The popularity of 8bc can be attributed primarily to two reasons.⁹⁵ Firstly, the freedom to instantly upload a chiptune on 8bc empowered users even more. The only filtering was in the hands of the creator(s) as to which chiptunes they would choose to upload on 8bc. In this way, a chipmusician could get noticed by other members and promote his/her work while receiving constructive criticism. And more relevantly, chipmusicians could choose to adopt any musical identity they wished, ranging from creator-engineers to bricoleurs who did not compose purely programmed chiptunes, but fusion-genres in chipmusic. 8bc was fairly diverse: certain members became popular chipmusicians, and there were also some others, such as Skrillex, who continued their careers in popular music.⁹⁶

Secondly, the first decade of 2000s marked a rather transforming phase in chipmusic. One such transformation was due to the development of chipmusic-making software for the

⁹⁴ This statement was made by Jose Torres at an interview I conducted with him (2013). However, there is a counter-argument that less than 10000 registered members were active as the majority of accounts were spam, aiming at sending unsolicited bulk messages. As one of the moderators of 8bc commented that "[...] The site [8bc] probably still only has about 10000 real members. Back when I was still admin there, I made some statistics about this. It turned out that 60% or so of the user accounts were unused. No forum posts, no music/images, not even music/image comments, and never logged in after first signup. I suspect most/all of these accounts were spam accounts that never got past the first step in the registration". (Nitro2k01, March 2012) <<http://chipmusic.org/forums/topic/6373/online-community-nostalgia/page/3/>> accessed 6/6/14.

⁹⁵ It is also worth mentioning that McLaren assisted in stoking chipmusic 'hype', as Yabsley has noted (Yabsley 2007:5), following his comments in mainstream media.

⁹⁶ Skrillex signed up in 8bc on 25/9/2007 using his real name, Sonny Moore. He uploaded three chiptunes, including *Mora*, a musical piece he later released as Skrillex. His profile is still available on the Web Archive: <<https://web.archive.org/web/20071110061903/http://www.8bc.org/members/Sonny+Moore/>> accessed 6/6/14.

handheld console, the Nintendo Game Boy. Suddenly, chipmusicians became more mobile as they needed neither heavy machinery nor proficiency in computers which by that time were technologically outdated, and difficult for an average user to operate. Chipmusic-making on the Game Boy offered simplicity, mobility, and accessibility. Indeed, the software needed for the creative process was not free. This was the time when the chipscene seemed to have a rather commercial character, which was previously unheard-of.

While chipmusic gradually gained popularity, 8bc was pictured as a user-friendly, democratic place where one can learn about chipmusic and also make the first steps towards producing a chiptune album. With the growing interest in chiptunes, more people who did not know much about the chipscene or the demoscene became involved. It was then that questions on learning how to compose chipmusic arose. Such questions were not so prominent in micromusic.net – it seemed that micromusic.net users had at least some basic background knowledge on chiptunes, possibly because they had already been interested in or involved with the demoscene. In 8bc one could learn now to compose chiptunes either by looking for information in the appropriate Wikipedia section or following advice in discussion threads regarding chipmusic-making.

8bc was home to a significant number of threads on chipmusic-making, the chipscene, but also discussions about any imaginable topic. This diversity in topics and personalities often resulted in conflicts.⁹⁷ One of the emotional states often associated with 8bc is drama. Chipmusicians use the term “drama” to describe negative forms of interaction in online places that refer to public conflict between members – similarly like drama, the theatrical genre, online community drama needs an audience. As Sibai et al. (2013) point out from a psychological perspective, drama is part of an online community’s identity and

⁹⁷ See Weber (1947) for a definition of conflict as a social relationship: an action which is an intention to “carry out the actor’s own will against the resistance of the other party or parties” (Weber 1947:121).

occurs when online conflict causes negative and positive emotions. Usually, drama is followed by public discussion, sharing opinions in a neutral, positive, or negative manner. Drama is similar to trolling as it often aims at destabilising online communities or at attention-seeking. Results after drama incidents call for censorship measures, such as members' banning from the online community by the moderators, depending on how severe and harmful one's stance is. This theorisation of drama has previously been articulated by Turner (1982) who was inspired by Van Gennep's ritual theory. As Turner highlights, social drama occurs at all levels of social organisation: familial civic, national (1982:16). For the chipscene, drama should be avoided. However, it is widely endorsed by chipmusicians in online communities and through personal communication, that drama is an inherent characteristic of the chipscene. When drama occurs, it comes as no surprise; and usually, any new drama is juxtaposed with reflective views on past drama.

Several cases of drama have been documented in 8bc, most of which are referred to in other chipmusic communities' discussion threads, such as chipmusic.org. The diversity of dramatic events on 8bc ranged from conflicts about chipscene ideology, in general, to such homophobic incidents as those discussed previously in this chapter. However, one of the most notable cases of drama in 8bc was caused by founder Torres and his commercial release of a chipmusic-making cartridge that plagiarised a computer code. Torres's idea was to create a Game Boy software cartridge with a USB slot on it, which could be used in order to save one's music on a laptop quickly and efficiently. However, this concept had already been developed and released as *GB Cart Flasher* (2008) under the GNU Library or Lesser General Public License version 2.0 (LGPLv2) by two Polish students.⁹⁸ Torres incorporated their code in his creation *BleepBloop Gameboy USB cartridge*. As Low-Gain remembers:

⁹⁸ The students' project was available online including detailed information on how to create a GB Cart Flasher cartridge. However, the product was not intended for commercial use (link: < <http://www.reinerziegler.de/readplus.htm#Home%20made%20programming%20systems> > accessed 10/6/14).

There was a lot of drama going on. Jose designed that board, but where did he get that initial code for the first round of his version of the cart? I don't have any proof that he took the code from them, but, I mean, it was pretty obvious that he had. (Low-Gain, former moderator in 8bc, *Geek Party* interview, 2012)

At the time, Low-Gain was an administrator on 8bc. When accusations began on discussion threads, Torres censored drama by deleting comments and banning members. Anders Carlsson (2010) describes in detail the incident in his article 'Hex, Shrugs, and Bleep Bloop':

In connection to this a number of threads concerning the issue were deleted and several well-regarded users were banned, such as low-gain and e.s.c who were admins, and kitsch-bent who supposedly did not receive his batch of cartridges for his vendor site. Several threads that concerned these bans were consequently deleted, or shrugged at by Torres. (Carlsson, *Chipflip* blog, 2010)

Following this incident, Torres wanted to put advertisements on the website, aiming at generating income. This idea was not particularly supported by many moderators or 8bc members as it was against the anti-consumerist concept that chipmusicians embraced until then – an ideology bequeathed from the do-it-yourself years on micromusic.net. For many, this was the beginning of the downfall of 8bc. Torres explained to me that he found it hard to maintain 8bc financially (interview, 2013) and despite the fundraising campaign that was organised in order to pay off the debt and keep the servers, 8bc was shutdown in November 2011, as the funds arrived late (ibid).⁹⁹ Inevitably, the servers were sold to another client of the web host company.

What is particularly interesting in this drama incident is that Torres' ownership of 8bc was completely ignored by 8bc members. Instead, 8bc was thought of as an online place that belonged to all members. As Carlsson writes, "8bc cannot only be described as founder+server+domain+brand. 8bc wouldn't be much without songs, messages, memes,

The specific licence allows to distribute copies of free software and apply certain limitations (e.g. commercialisation).

⁹⁹ However, some backups of 8bc are still available on the Internet Archive: <<http://web.archive.org/web/20111009003537/https://8bc.org/>> accessed 10/6/14.

pictures and software that was made by others” (Carlsson, *Chipflip* blog 2010). In the case of 8bc it was assumed that the meaning of this online community was made by the people who participated in it, rather than the purported owner and founder of the community.

The drama did not end there. The 8bitcollective.com domain and servers were sold to former 8bc members who built on 8bc’s fame and fanbase.¹⁰⁰ They repurposed 8bc as The Treble Death System (TDS), a netlabel that plagiarised 8bc design and released electronic music with an emphasis on 8-bit sounds. The exertion of power by Torres was not received well by the 8bc community, despite the fact he had every legal right to do anything he wanted with his creation. While drama shook the 8bc community to the core, some members took the initiative to migrate to social media, such as Facebook, and created groups to keep the community alive. Others charted a different course, aiming at advancing the chipscene. It was then that chipmusic.org, µCollective.org, and Noisechannel.org emerged, starting a new chapter of chipscene history, presented in the following section.

4.2.2 Sustaining ‘our’ chipscene in chipmusic.org, noisechannel.org, and µCollective.org

As previously explained, 8bitcollective (8bc) was seen by its members as an online interactive place that, ethically speaking, belonged to the community. After the controversial events in 8bc regarding Torres’ release of plagiarised-coded Game Boy chipmusic-making cartridge and his initiative to put advertisements on the website in order to generate income, chipmusicians sought alternative online places as they felt misrepresented by 8bc. One of the USA-based 8bc members, Timothy Lamb, talked to me about the creation of a new online

¹⁰⁰ Several 8bc moderators expressed an interest in buying the servers and domain from Torres before it was shut down, aiming to keep 8bc as a completely ads-free community. After 8bc was shut down, in a discussion with Frans, the Eindbaas’ organiser, he explained to me that he wanted to buy the servers and have 8bc up and running again (interview, 2012).

community, chipmusic.org (cm.o), following the incidents of drama in 8bc. The site was launched in 2009 and the first forum post was on 30 December 2009.¹⁰¹ Like 8bc, Cm.o used a rather minimal design, with black background, white fonts, and some pink and electric blue colours. Cm.o did not promote a brand like 8bc did, rather a pixelated logo depicting a pink conversation cloud with white lines representing conversation, is used as a website icon.

The distinct hierarchy of status in cm.o is clarified on the website. Three user-categories primarily exist: Moderators, Members, and Guests. Additionally, there are indications for bots, such as search engine crawler bots, bot ‘dupes’ (duplicates from different IP addresses), and spammers, which are automatically blocked.¹⁰² In terms of website architecture, cm.o is divided in the following self-explanatory sections: Music, Forums, Recent Posts, Members, Profile, Messages, Home and Logout. The Forum, i.e. discussion threads, consist of four areas of topics: a) Site Operations. This section includes general information on netiquette, announcements, bug reporting, and also includes bad or offensive posts that have been intentionally moved there (*The Graveyard*).¹⁰³ b) Community. In this category, one will find general discussion posts, and also threads regarding events, releases, collaborations, constructive criticism, and trading. There is one section which is addressed to members only, and it is to prevent guest users from accessing some information (such as Skype contact names and game codes that members exchange). c) Hardware & Software. Here, one can find posts on music trackers, computers and other hardware categorised by brand (e.g. Atari, Commodore 64, Sega, etc) but also on circuit-bending, audio production, and product reviews.¹⁰⁴ This section is particularly useful for new

¹⁰¹ Member Infradead started the discussion topic: < <http://chipmusic.org/forums/topic/7/1st/>> accessed 11/6/14.

¹⁰² See chapter three for a definition of bots.

¹⁰³ Reports on bugs in code are elements that should be fixed in order to improve website performance or layout.

¹⁰⁴ Circuit-bending is a form of hardware hacking and repurposing of sound objects into musical instruments. It is primarily performed on the circuit board by short-circuiting and/or adding electronic parts. Some chipmusicians are also interested in circuit-bending and often modify their computer platforms by adding switches, LED lights, and other electronics.

chipmusicians as it includes tutorials. And finally, d) Visual Arts. A thread dedicated to graphics, artwork and design, and motion graphics.

Regarding the aims of cm.o and the reasons why it was created, Lamb explained to me that:

We needed a non-commercial outlet for the community to share music and ideas. A few of the moderators & developers from 8bitcollective got together to create the site. We felt that the commercial avenue 8BC started to take was conflicting with the spirit of the community. (Timothy Lamb synchronous chat interview, 2013)

The use of plural form, “we” is inextricably linked with the openly expressed need of chipmusicians to act collectively at that particular time in chipscene history. 8bc members, in their attempt to resist to Torres’ exertion of power, revolted by migrating to a newly founded online community. With this move, chipmusicians highlighted the significance of belonging in a community that supports their shared values, beliefs, and ideology – in social network analysis terms, this is the homophily of the chipscene network. This is the primary difference for cm.o members, who often sarcastically comment in their posts that “this isn’t the 8bc” implying that drama, conflict, banning, and other negative connotations related to the 8bc do not belong in cm.o’s profile. However, certain chipmusicians find that drama is associated with the chipscene in general. As Je Mappelle posted in his Facebook profile:¹⁰⁵

[...] it seems there is an abundance of drama surrounding the scene, for me the only way to indulge in the scene is via the internet, the main place to go is cm.o, unfortunately, that’s where the majority of what I’m speaking of takes place. (Je Mappelle, 18/6/2013 Facebook status update)

Some chipmusicians such as Je Mappelle, choose to resist endorsing the drama in the chipscene by abstaining from online discussions.

¹⁰⁵ Je Mappelle is a British chipmusician who lives in Isle of Man.

This social change in the chipscene has had an important impact on the issue of representation. By the mid-2000s, when the dialectical dilemma between commercialism and free culture emerged, the chipscene was significantly larger than when it began in the 1990s. Arbitrariness of ideologies, cultural and musical diversity became more apparent. This change of ideology is further explained in the next section of this chapter, outlining the generational gaps between chipmusicians. The first decade into the millennium found the chipscene rich in online places. Local online communities emerged, such as the ones in Italy, Indonesia, and Malaysia, aiming at bringing neighbouring chipmusicians together. Additionally, two more online communities appeared: noisechannel.org and [muCollective](http://muCollective.org).

Noisechannel.org (NoiChan) began in May 2011 as a USA-based netlabel operated solely by founder Freque.¹⁰⁶ Since its emergence, 64 chiptune albums have been released by chipmusicians from 11 countries during my time of fieldwork. Additionally, NoiChan was promoted as an online chipmusic community. The website adopted a minimal style with black and orange colours as a trademark, featuring customised user-generated banners and a pixelated logo of the letter ‘n’ followed by a two-tier chess-pattern. The main menu included four submenus: upload, forums, shop, and releases. Releases are free to download, but the show section features several chipmusic-making products which are made by NoiChan members. The site is self-funded with some user donations. Other material published on NoiChan is interviews with chipmusicians, reviews of events, and chipmusic-related articles.

NoiChan did not grow in popularity as an online community – it counted 845 registered members over 1312 members in muCollective.org, which appeared significantly later than NoiChan. As explained previously in this chapter, NoiChan’s bad reputation,

¹⁰⁶ Not to be confused with Noise Channel, a weekly chiptunes radio show produced by Kris ‘TrueStar’ Kaufman and Jake ‘virt’ Kaufman broadcasted on Arecibo Radio.

associated with the controversial behaviour of its operator, Freque, resulted in its unpopularity. In his attempt to justify his actions, he uploaded a 'Freque on Freque' interview with himself claiming that his highly active online presence is what causes the misunderstandings (Freque self-interview 2013). Additionally, he highlighted that the reason he set up NoiChan was for the benefit of the chipscene, while he was left suffering the financial burden of an online community. Moreover he estimated that his attackers were jealous of his actions:

They claim to be “defending” the scene from my “unwanted presence,” but at the end of the day, they’re attacking the already small foundation of chiptune, and masquerading around as if they’re noble for doing so. (Freque self-interview, 2013)

Since the sexist incident in late 2013 (see previous section of this chapter), NoiChan discussion threads have been deserted and it primarily functions as a netlabel.

µCollective.org (Micro Collective, also written as uCollective for simplicity) is a creation by English chipmusician and former administrator of 8bitcollective, Sam Wray (who also uses the artist name 2xAA). As Wray clarified, uCollective began as BRKbc (breakbit collective) and the final name was the result of an open vote on Facebook demonstrating once more the significance of the fan base/audience in the chipscene:

When BRKbc took over as ‘the new 8bc’, I emailed Jose [Torres] to discuss 8bc and µCollective. He requested I change the name to something else, not parodying 8bc but he was fine with µCollective being around. I asked a question on my 2xAA Facebook page and left it open to new name suggestions. MicroCollective or µCollective was the most popular choice. (Sam Wray interview, 2013)

In 2012, Wray launched uCollective after teaching himself the basics on building websites through his experience on 8bc (Wray interview, 2013). His initial purpose was to create a chipmusic online community as a legacy to 8bc (ibid). Similarly like other online chipmusic communities, uCollective is designed minimally, using primary black text on white and sky blue backgrounds. The main menu is comprised of audio and visual user-generated content, forums, search, and the store, one of the main sources of income for the

community's servers (ibid). The categories in the discussion threads are also common in other online chipmusic communities, featuring a general section (announcements, rules, *the Graveyard* etc.), a section on community (posts on discussion, events, music, collaborations, and releases), three more sections on hardware, software, and visual, followed by an off topic discussion thread.

Members' profiles resemble 8bc's member area, showing a full profile with information on uploaded chiptunes or visuals, comments and feedback, but also a list of a member's posts. uCollective does not have a distinct identity yet, as it is rather new in the chipscene. However, it appears as a renaissance of the initial spirit of 8bc, an online place thought of as 'our community' in chipmusic narrative, without the drama and financial issues.

The second section of chapter four examined digital places of chipmusic activity and creativity. Here, I outlined in detail the digital architecture of online communities and provided an interpretative analysis of oral discourse based on chipmusicians' narratives. In looking at their experiences in digital places, I centred on difficulties of claiming ownership on the web and the technologically determined aspect of infrastructure. The primary conclusion of this section is the several manifestations of creative expression found in the chipscene network (use of various creative technologies for chipmusic-making, promoting, communicating). As demonstrated in this section, chipmusicians negotiate and communicate their ideology collectively, particularly following incidents that may cause threat to the chipscene. The third section of chapter four discusses discourses of creativity in the chipscene.

4.3 Chipmusic creativity discourse in the three generations

Since the beginning of fieldwork I came across diverse discourses when trying to decode chipmusic meaning. As Cottrell observes, musicians conceptualise different degrees of creativity and assert what kind of music they find creative or not (Cottrell 2004:112). In the case of chipmusic, it was not until the end of fieldwork that I noticed a pattern related to this ideology on creativity in chipmusic worlds: chipmusicians attempt to break the tradition of chipmusic-making by introducing new and possibly innovative ways of composition, such as the use of modern computers. As a result, other chipmusicians denounce this action, criticising the musical output as non-chipmusic and thus, as not creative, because it is not structured upon the premise of using original hardware. For some chipmusicians, the materiality of chipmusic lies in the medium, but for others, there are other evaluation criteria, such as melodic structures in music. As previously explained in this chapter, the primary critics of chipmusic are the fans, which predominantly consists of other chipmusicians and chip-related social agents. In terms of social organisation, chipmusicians perform in smaller networks according to their ideology on chipmusic creativity. Differences in diverse discourses could be understood as generational gaps primarily due to their connection with traditional composing techniques.

The argument on the division of chipscene generations according to ideology regarding creativity is also supported by relevant literature (see for example Pasdzierny 2012 and Nova 2014). Like any heuristic, the chipscene generations are abstractions and others may divide them differently.¹⁰⁷ Nonetheless, in the present context, the fundamental difference of these generations is the way chip-related social agents construct and construe chipmusic meaning. The categorisation according to generation reflects the plurality of

¹⁰⁷ For instance, Nova (2014) describes five generations dating since the beginning of video game music. However, only the last three generations are directly related to the chipscene.

discourses as well as a set of values and beliefs related to what constitutes acceptable ways of making chipmusic.

In anthropology it has been traditionally argued that one generation lasts for thirty years (Lisón-Tolosana 1966). In the chipscene, the generations have intricate relation with computer technology and its evolution, hence it can be assumed the generational timespan is limited roughly to one decade. Every generation stands as a knowledge-belief database for newcomers in the chipscene. For this reason, generation values are transferred to new people entering the chipscene. In the following sections, I explain how the chipscene is divided in three generations and how chipmusicians develop a different understanding of chipmusic tropes.

4.3.1 The first generation: limitations, originality, and the significance of code

In October 2012 during participant observation in Manchester, I attended an event produced by Superbyte organisers. In the dark nightclub setting that resonated with chipmusic event rituals which will be explained in chapter six, I was introduced to a local chipmusician, Sk8bit. I explained I was interested to know more about chipmusic and particularly his opinion on ‘what this is all about’. He quickly replied “you know it’s all about limitations, don’t you?” I nodded and asked him to explain his argument. Sk8bit talked to me about the idea of having total control over machines and how technological limitations of obsolete computers facilitate this aim. He explained that having no more than four channels to compose music urges you to be more creative – not only in ways that one’s composing skills are enhanced, but also in terms of how composing skills and resources are used. This was a familiar narrative shared by other chipmusicians I spoke to.

Such comments on the importance of limitations and the appropriate technology are rather purist. This is not surprising, given that the first generation of chipmusicians were directly linked to the demoscene (Carlsson 2008a:162, Tomczak 2011, Pasdzierny 2012, Nova 2014). Reunanen highlights that high-quality demos are created with technologically limited computers only, and any demo created without such limitations is not valued (Reunanen 2010:53). Additionally, as Menotti Gonring has argued:

[e]ven today, such works [demos] are appraised not only by their plastic beauty, but also by their algorithmic elegance – which can be evaluated by their size in bytes. Upon creating a demo, the filmmaker does not only aim for the equilibrium of composing and montage, but also for the efficacy of the subjacent code. (Menotti Gonring 2009:111)

These were the primary elements of classifying a demo as of great quality – limitations, efficient code, and small file size.¹⁰⁸

To unpack this argument, firstly, in demoscene discourse, technological limitations are imperative to create demos – it is an accepted convention in the demoscene, a kind of tradition. Secondly, a good demo should be small in sizing capacity in order to fit in a floppy disk. This is in line with the argument about working creatively around limitations: in the 1990s, before online chipmusic communities emerged, demos were circulated in floppy disks whose capacity ranged from 512 to 4096 bytes and small audio files allowed for richer visuals.¹⁰⁹ Finally, a demo was criticised based on the coding skills of the demogroup. Using rich and efficient code resulted in a stable demo. Consequently, the evaluation of demos depended on aesthetic criteria tied to the technological aspects both of the code and the platform.

¹⁰⁸ It is also safe to assume here that like in the chipscene, all classification and evaluation is also performed by fellow demoscene fans.

¹⁰⁹ To put floppy disk capacity into perspective, an average compressed music file of a 3-minute pop song is 4000 bytes.

One of my key informants, Goto80, started in the demoscene during the 1990s. He underlined the differences and similarities in the habitus of the demoscene and the chipscene:

[...] I really like that there's no bullshit in the demoscene. No conceptual blabla, no need to network with the right people to get appreciation. It's based on competitions, which goes against many dominant ideas about creativity/art today. I like that. Sure, it's a bit conservative and plenty of bad taste, but you know what's expected from you. It's a challenge to try to win the compos, and not some vague idea of ego-centric self-expression. I suppose both cultures are quite homogenous (white males 20-40 years old), but the demoscene really has an absurd mixture of people. You get the proper rich consultants and headmasters and CEOs mixing with unemployed potheads, artists and schizophrenics. Demoscene parties – especially the small ones in Sweden – have a vibe that's quite unique. (Goto80 interview, 2011)

Examining how originality was considered in the demoscene is also interesting. Carlsson suggests that demosceners were dedicated to the concept of originality when it came to building a demo without borrowing another demoscener's work:

Generally it was 'better' to do everything yourself, from scratch. Even if some people used parts of other demoscene works, they ran the risk of being called lame instead of elite. The romantic notion of the isolated author-genius was thus highly present in the demoscene. [...] The practice of absolute measurements of quality dates back to cracking, as does the related distinction between the elite and the lamers. If you were elite you knew how to behave, how to talk (elite = eL17E), and how to produce (from scratch). (Carlsson 2009:19)

In principle, the interplay between 'elite' and 'lamer' defined power relations in the demoscene. As Reunanen observes, demoscene promoted a form of meritocracy in terms of social status (Reunanen 2010:34). At the highest rank in this social hierarchy, the distinguished performer is found (elite) whereas at the bottom end, one would find lamers who are clearly defined as poor, weak, and uncreative individuals. There are certain differences in the chipscene. For example, Reunanen and Silvast describe a lamer as someone who constantly seeks basic coding advice by other demosceners (Reunanen and Silvast 2009:298). In contrast, inquiring about chipmusic-making in the chipscene is recommended and supported by chipmusicians.

According to the previous accounts, authenticity in demoscene was defined by technological and ownership criteria i.e. coding skills on limited platforms and original code.

As previously stated in chapter one, the first chipmusicians were demosceners who decided to focus on the musical aspect of their work. It is only natural then that such beliefs were passed on to first generation ideology in relation to chipmusic-making: the use of limited technology is fundamental, and one should aim at being an ‘elite’, using original elements. This originality could be translated in numerous ways: firstly, by avoiding musical plagiarism (an activity which is still denounced in chipmusic); secondly, by using original hardware.

At this point I would like to highlight a basic issue of authenticity, a concept I look into detail in chapter eight. The principal problem of authenticity is that it is a dynamic concept and its definition differs according to the specific cultural context it is found (Auslander 1998, Cogan and Cogan 2008:70).

Chipmusic creativity in the first generation is entrenched in cultural understandings of authenticity that are deeply rooted in demoscene beliefs. This is the primary reason why original hardware is of great significance for chipmusicians (opinion also shared by Tomczak 2008). As a result, purist ideology in the first chipscene generation characterises the definition of chipmusic as solely the product of original hardware platforms. Thus, for this generation, creativity in chiptunes is weighted by the use of technological limitations and the tricks performed to work around them as well as the efficiency of good code.

The importance of code for the first generation was often demonstrated in chipmusic events. Nils Dittbrenner who wrote his master’s thesis on chipmusic composition recently discussed with me that Goto80 would display his tracker code using a laser beamer while performing on his Commodore SX-64. However, as Nils explained, very few people could understand the code and that the majority of the audience was there to listen to the music

and simply, enjoy a night out. On the one hand, this shows the diversity of chipmusic audience and on the other, the significance of communicating one's ideology even among people who may be outsiders. In this sense, ideology on creativity becomes a means of performing one's identity. It is worth mentioning here that the practice of projecting one's code has been extended in the live coding scene where agents manipulate live algorithmic processes that shape sound and visuals focussing on the (algorithmic) processes and/or the performance (see more on this in Collins 2011:207). Unlike the chipscene, live coding requires a level of understanding in terms of coding, particularly when the aim is to highlight algorithmic processes. However, as Magnusson has argued, popular hacker and maker cultures have enhanced the role of code as a creative activity equal to playing a musical instrument (Magnusson 2015). The live coding community has popularised live coding by sharing code online, organising coding workshops, and engaging wide audiences in this practice. In this respect, there are certain similarities between the chipscene and the live coding scene in terms of dispersing their creativity in learning (educating), collaborating, and producing sounds.

4.3.2 The second generation: the mobile artists

The discourse of the first generation fostered the dominant ideology on chipmusicians' creativity during the 1990s. Changes are observed after the first decade of the 2000s, when the second chipscene generation attracted attention. Previously in this thesis I briefly explained the significance of the Nintendo Game Boy for the chipscene. In this section I will develop this argument, highlighting the impact of mobility on chipscene ideology and thus, the organisation of the second generation. Mobility in the chipscene

context is understood by adopting Gopinath and Stanyek's suggestion, "in terms of the capacity for or incorporation of movement" (Gopinath and Stanyek 2014:27). Thus, I examine the ways chipmusicians are enabled to move while practising chipmusic, and also the incorporation of movement due to this mobile form of power, for example, by means of dancing gestures while performing, a choreographic approach to the experience of music in a party context.

As illustrated in the previous section, during the 2000s online chipmusic communities thrived. After the emergence of micromusic in 1999, and the establishment of 8bitcollective in 2004, a number of other online communities and netlabels appeared. During that period, *Nanoloop*, the software cartridge that turned the portable 8-bit gaming console, the Nintendo Game Boy, into a musical instrument, was developed and released (1998). In the early 2000s, *Little Sound DJ (LSDJ)*, followed on the same console. Mobility, as mediated through the use of *Nanoloop* and *LSDJ*, transformed chipmusic processes from the point of production to performance. With a Game Boy and a software cartridge, one had the opportunity to compose and perform their music anywhere. As Sycamore Drive, a chipmusician based in Scotland, reminisces:

As a student, I spent about three hours a day on public transport and I always wanted to find new ways to use that time effectively. Chiptune has always been a shortcut, I didn't need to sit and think about instruments, levels, microphone placement, etc. I could just sit down and write a song. That's exactly what I needed. (Interview at noisechannel.org, 2012)

Music-making on Game Boy was indeed simpler and more straight-forward in relation to trackers, the specialised music-making software recognised especially by demosceners and game developers during the 1980s and 1990s. The changes in mobility resulted in the popularisation of chipmusic in the first decade of 2000 (Carlsson 2008a), and suddenly, chipmusic-making became more accessible: firstly, Game Boy consoles were affordable and obtainable online and offline; secondly, they were easier to manipulate; and

thirdly, they supported mobile people who travelled around the world in order to perform their music. Chipmusicians could perform anywhere, and it was during the 2000s that even open street chipmusic performances (see Pasdzierny 2012) became popular – in some places, for example Indonesia, UK and, US more increasingly than others, for example Malaysia where legislation regarding public performances was strict.

As a result of the popularisation of chipmusic, several people became interested in chipmusic-making. Ramocki commented on the profile of chipmusicians that once chipmusic became more popular, its audience also became more diverse attracting three groups of people: “gamers, computer geeks, and sophisticated hipsters” (Ramocki 2006). It should be briefly noted here that there is yet another binary adopted to describe chipmusicians: ‘geek’ and ‘nerd’. These terms are synonymous although ‘geek’ appears to be more accepted within the discourse of geeks (view also shared by Eglash 2002 and Kendall 1999, 2011). This label represents the stereotype of a white male teenager whose technological literacy is highly advanced (ibid) – in demoscene talk, an elite. In chipscene discourse, both terms were used interchangeably by my informants and sometimes, this was a topic for trolling in discussion threads.

The main source for someone who wanted to learn how to compose chiptunes was (and still is) the internet. A variety of documents and video tutorials are available online: chipmusicians upload their own software tutorials (for example Sabrepulse’s *LSDJ* tutorial which is available on YouTube and on the Web in text form), documents and discussion threads explaining how to compose chipmusic at several online communities (for example noisechannel.org, or chipmusic.org), and as recently Danimal Cannon pointed out in his talk at TedxBuffalo (2013), a number of workshops which aim at chipmusic education, are organised globally, where people can learn how to compose chipmusic. The learning process

follows a specific pattern: one needs to copy the tutor's steps in order to learn how to manipulate software and then use their own musical ideas. This is also encountered in other cultures, as analysed in chapter two.

Copying – or rather, imitating – became an intrinsic characteristic of second generation chipmusicians. Chipsceners who were initially interested in composing chipmusic rather than programming and experimenting on software are found in this generation. Seeing creation as a process of imitation produces an interesting paradox. As Hallam and Ingold (2007:5) observe, to create a cultural artefact means to produce something new, which did not previously exist. Every creation is bound to a previously-existing ideology. If the outcome is new then it is creative, according to the initial argument. The logical paradox would suggest that whatever is a copy, or an imitation, cannot be new, and as a result it is not creative. A possible interpretation of this paradox in chipmusic could be seen as follows: To a certain extent, the first chipscene generation instinctively attempted to avoid this paradox by using original platforms and composing chipmusic from scratch. However, it seems that the second generation accepts this paradox (again, instinctively), embracing the concept of imitation as part of the creative process.¹¹⁰

As reflected in relevant literature, chipmusicians of the second generation are more open to conventions and communities of popular music (Pasdzierny 2012:179, see also Dittbrenner 2007 and Yabsley 2007). They think of themselves as artists, rather than coders or gamers (Pasdzierny 2012:180) and in a sense, they redefine chipmusic aesthetics, as set by the first generation's cold, technological criteria (an idea also endorsed in Nova 2014:57-58). Second generation chipmusicians introduced the quick and efficient mediation of chipmusic in two ways: by regular use of the internet to communicate and exchange music

¹¹⁰ I do not assert that this is the case, nor do I structure my argument upon this basis; rather, I suggest this as a possible interpretation.

– following the input of first chipscene generation that established online chipmusic communities – and by introducing mobility. Chipmusic performances were quite static before the emergence of mobile chipmusic-making platforms, primarily because this gear did not allow otherwise. The second generation incorporated dance movements in their staged performances.

The second generation of chipmusicians are most known for establishing global festivals (for example, Blip Festival, Eindbaas, Micromusic parties) and also for popularising chipmusic by sampling its aesthetic characteristics in popular culture (using audio samples in popular music, pixelating pictures and so forth). In this chipscene generation, information and communication technologies are adopted as creative methods of production and promotion, as in the case of crowdsourcing. One such example is the documentary that overviewed the chipscene in Europe entitled *Europe in 8 bits*, whose director, Javier Polo, begun a crowdsourcing campaign on Verkami raising more than 5,000€.¹¹¹

Following the influence of the second generation in the chipscene, a new pattern is observed which affected chipmusic ideology. In the next section, the third and final generation to the day of writing this thesis is described.

4.3.3 The third generation: chipsters

The ideology of the first generation started to fade out following chipmusic's popularity boost in the 2000s. More specifically, chipmusic-making software for modern computers developed, in order to assist and encourage chipmusic enthusiasts to create

¹¹¹ *Europe in 8 bits* campaign on Verkami, <<http://www.verkami.com/projects/1530-europe-in-8-bits>> accessed 25/3/14.

chiptunes. This software primarily consists of emulators of 8-bit sounds. An emulator, to put it rather simply, is an imitator of low, 8-bit technology, on a modern computer environment (see Carlsson 2010, Nova 2014:58, and chapter five in this thesis). As *Chip Sounds*, an emulator advertisement suggests, “you DON’T need to deal with a small and hard to read interface”, “you can CHOOSE to be limited in terms of pitch and polyphony OR NOT”, and “you DON’T need to spend years hunting garage sales [...] to gather a collection such as this one. We have done it for you :)” (Original emphasis). The use of mobile consoles and 8-bit emulators suggests that after the second generation, there was a turn towards the simplification of chipmusic-making. Simplification then, becomes an aesthetical characteristic of chipmusic in this generation (see also Pasdzierny 2012:181). Additionally, in certain cases, chipmusicians also combine chipmusic-making platforms with conventional musical instruments.

According to the third generation, the second generation had formed the characteristics of what third generation chipmusicians consider ‘original chiptune artists’. The third generation represents the newest chipsceners, who seem to adhere to hipness.¹¹² This group of people is often humorously self-called ‘chipsters’ and adopts three recurring characteristics of hipness: a) the trickster character, or ‘trolling’, in internet terms, b) unconventional ideology, and c) co-optation of chipmusic in popular music.

The first hipsters, or tricksters as they were called, performed several manifestations of irony in their attempt to mislead. In the chipscene particularly, trolling is a form of hip tricking.¹¹³ As Donath (1999:45) suggests, trolling is “a game about identity deception”.

¹¹² Phil Ford (2013) outlines the characteristics of hipness as expressed in North America, tracing its history as early as in the 1930s. Hipness is a stance, it is a way to oppose to cultural and social norms. Hipsters consider themselves as cool, open-minded and creative individuals.

¹¹³ It is worthwhile noting that tricking is prominent in diverse cultures. For example, Feld writes about the trickster stories of Kaluli – the *Newelesu* – during which an “animated raconteur” (Feld 1990:23) reproduces the story in a performative and amusing manner.

Originally it was a practice shared by Usenet users who wanted to deceive outsiders and newbies, or “noobs” as new members are commonly referred to among online users. Chipsters find different ways to deceive in the chipscene: lying about their location online and setting it to the Antarctica and other unpopulated areas (example demonstrated on micromusic.net map, see chapter three), mocking publicly mainstream media, or even deceiving just for the sake of it.

One of the most prominent examples of chipness expression I encountered during fieldwork was the case of a fake tattoo that a chipmusician pretended he got. On April 24, 2013, Je deviens DJ en 3 jours shared a photo on his Facebook Page picturing a tattoo of the name of the largest monthly chipmusic festival in Europe, that he was about to have done, prior to his planned performance there. In the picture and caption, he appeared to have misspelt “Eindbaas” for “Eindbass”. When his mistake was pointed out, he appeared shocked and overwhelmed, and soon people started comforting him. For the online world, he was devastated.

The following day, and after hundreds of comforting comments on Facebook, JDDE3J published a YouTube video, revealing his completed “Eindbass” tattoo. The thirty-second video, featured him unwrapping his arm properly, as if he had a real tattoo done and covered with cling film, sonically framed by his music playing in the background. The revelation after a short countdown during which music became louder and gradually higher in pitch, was the scribble “IDIOTEN!” which was clearly written with black marker pen. The end of the video was an advertisement of his forthcoming Eindbaas performance. This trolling incident represents a marketing technique widely used in the digital domain, adopting do-it-yourself ideology (which is yet another attribute of the chipscene), the use of

a brand (Eindbaas festival), tangled nicely with the music commodity (JDDE3J's background music), aiming to advertise his forthcoming performance.

Chipsters also find themselves supporting unconventional beliefs. Once something is established, it needs to be changed. For example, first generation purists suggest that chipmusic should only be composed on 8-bit computer platforms, which are technologically limited, and thus, require more effort and tinkering. Complexity in programming is sought after. However, for the chipster generation, purist ideology is conventional and thus, not appealing. Chipsters compose chipmusic on a variety of platforms, including modern computers, applying different criteria, based on popular music aesthetics rather than materialist approaches. Thus, cultural co-optation is the third characteristic found among chipsters. For Ford, co-optation "is a story that keeps us on the hook, looking for fresher and more appealing kinds of rebellion" (Ford 2013:38). Chipsters find creative ways of combining avant-garde and subcultural elements in order to break through to mainstream audiences, a practice which is criticised by purists.

The primary difference between second and third generation is that the latter embrace musical hybridity by combining acoustic instruments, hardware (either obsolete or modern) and computer software (Nova 2014:59) without being concerned about technological limitations and purist criteria. This is where differentiation is found in the chipscene (see further in chapter eight) and such a change suggests another turn towards more liberal approaches to chipmusic-making.

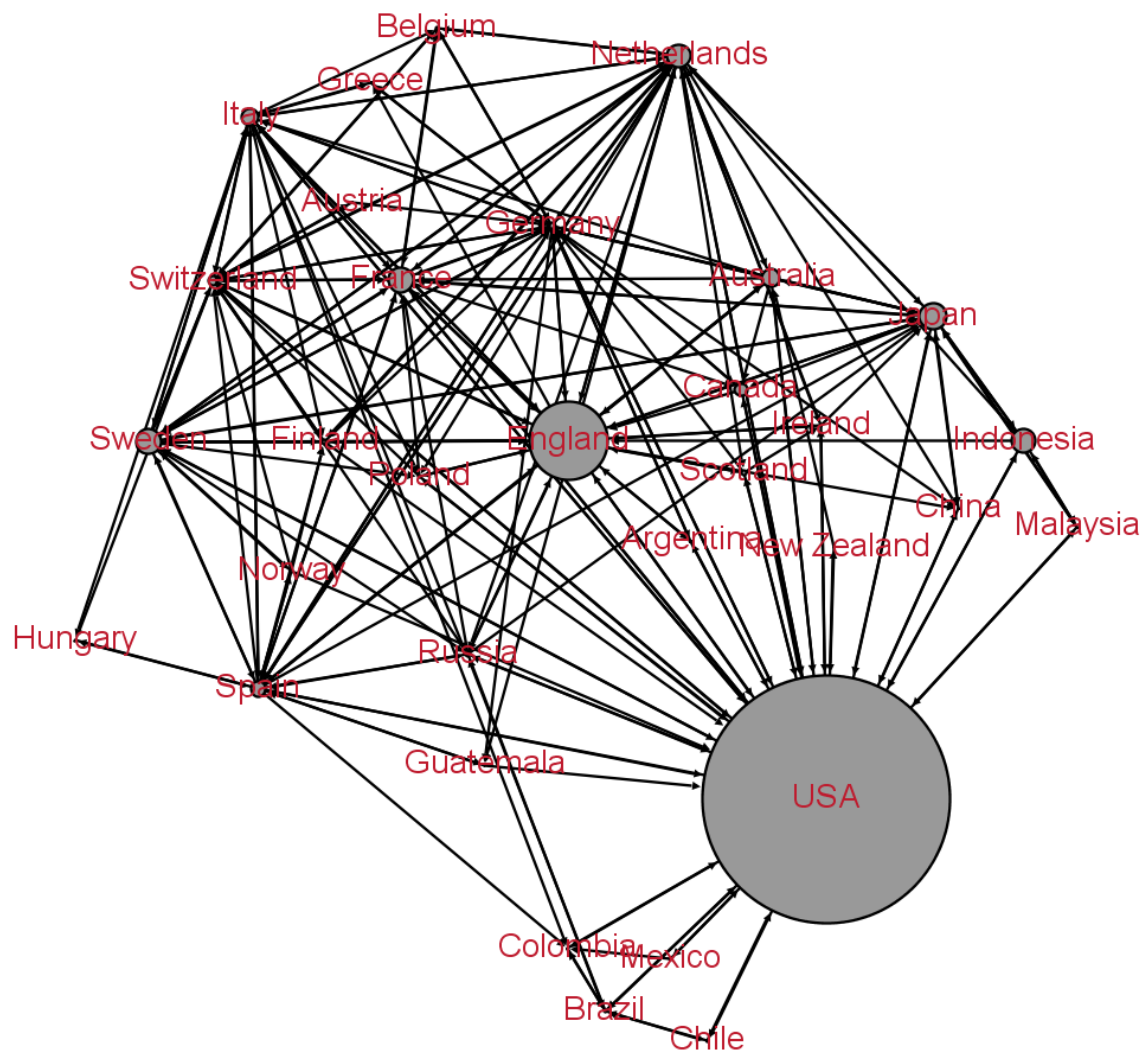
The use of the concept of generations can be rather limited for the analysis of the chipscene. Considering that generations are tied down to specific time frames, applying this to such the dynamic network of chipmusicians does not reveal diversity properly. Certainly,

the boundaries between the three generations are blurred but this can cause more issues than answer questions regarding the discursive context of creativity. It would be rather effective to see these generations as nuanced layers that are not constrained by time. Rather, this view would resemble more the properties of a network that can be altered at any moment but, if recorded and observed, it can reveal how discourse is created, communicated, negotiated, and changed. Having analysed how creativity is administered across the three chipscene generations in the chipscene, the next and final section of this chapter centres on the analysis of the chipscene network as it was construed during the two years of my digital and physical fieldwork.

4.4 Social network analysis of the chipscene network

The first two primary sections of chapter four were fairly descriptive as they presented chipmusic worlds as encountered during fieldwork. In summarising, networked creativity in chipmusic encompasses various practices, related to chipmusic-making (single or collective-authored chiptunes), promoting chiptunes and events online, establishing social ties in digital and physical places, raising funds for chipmusic purposes, organising performances, and performing, among others.

The current section aims at looking at networked creativity in chipmusic through the social ties – rather than the chiptunes as distributed objects – that are formed across the chipmusic worlds. This assemblage of human and non-human agents is the chipscene network, which shows how social relations are distributed and dispersed, following Born's (2005:16) conceptualisation. The generated graph of the chipscene network does not show how social relations are transformed as it depicts a static two-year period. Future research and comparative SNA could demonstrate this.



Graph 1. Chipscene network (directed graph).

The chipscene network is a one-mode, directed network encompassing a set of similar nodes and their ties (directions are depicted as arrows on edges). As has been previously elucidated in chapter two, to examine the transnational connections of the chipscene network with respect to its cosmopolitan character, locality is significant and geography is internalised as the organisational logic of the networked aspect of chipmusic. Every country represents a clustered local chipmusic world, which can be broken down into individual chipmusicians (not showing in the graph but seen in the datasets). To avoid any confusion, it should be noted that the chipmusicians are primarily based in or have started their activity from urban places with very few exceptions (for example, Je Mappelle who lives in the Isle of Man). The social ties are depicted as directed edges and demonstrate the creative collaborations between chipmusicians in the specific countries. Some of the edges are one-way (in- or out-degree) whereas others are reciprocated.

Two aspects are of interest here from the SNA perspective (as these were clarified in chapter three): a) betweenness centrality (how often a node appears on shortest paths between nodes in the network, and therefore, how influential it is) and b) modularity (community detection in networks, examined in section 4.4.1). Centrality demonstrates that central nodes are useful for networks as they can release information to the network faster. Disconnected or faraway nodes are not good for this task. Table 1 below summarises node ranking based on ethnographic data and rank position by betweenness centrality as generated by SNA. As shown, there are certain deviations between the two methods that are explained further in this section.

Table 1 Comparative node ranking (ethnographic methods) and Betweenness centrality (SNA) ‘top ten’

Node Rank (ethnography)	Label	Rank Position (SNA)	Label	Betweenness centrality
1	USA	1	USA	393.36
2	England	2	Germany	87.78
3	Japan	3	England	76.03
4	Sweden	4	Spain	74.25
5	France	5	Switzerland	64.51
6	Indonesia	6	Netherlands	54.97
7	Netherlands	7	Italy	37.64
8	Australia	8	Japan	31.90
9	Italy	9	Sweden	24.44
10	Spain	10	France	16.50

The chipscene network is a closed network (all nodes are connected) and represents 32 nodes and 229 edges (graph 1) (average degree = 7.156, that is the average number of edges that each node has, Borgatti et al. 2013:15). The size of nodes (ranking) represents how active the chipscene is in the particular country and edges reveal which countries are connected. The largest node in the graph is the USA followed by England, Japan, Sweden, and France.¹¹⁴ USA becomes naturally the largest node based on ethnographic data, given the large size of the country, the number of chipmusicians that are active there, and the fact that they hold the largest number of chipmusic releases (147). USA also has the highest betweenness centrality (table 1) which positions it as the most influential node in the network. Moreover, ethnography informs us that the North American chipscene has been influential for second generation chipmusicians as they are the ones – particularly the 8bitpeoples collective – who popularised chipmusic-making and established Blip Festival, one of the largest annual chipmusic gatherings in the world.

England is found second in line (second in ranking and third by betweenness centrality), as it has been an important hub of chipmusic activity, encompassing several netlabels (for example, Pterodactyl Squad, Calm Down Kidder, and Kitten rock)

¹¹⁴ A complete list of the node-countries arranged by size can be found in the appendix (section 5: dataset sample).

chipmusicians, and events (Analog Attack, MegaByte and SuperByte, among others). England also comes second in chiptune releases (47). England's topology in the network places it centrally to the network. This suggests that England would be an ideal node to disseminate information across the chipscene network. This is also supported by ethnographic data that demonstrate that social ties are established in events in England that run on a regular basis (monthly or annually). This regularity has enabled in- and out-degree (coming from England and directed to other countries) connections to this node.

As previously explained in this chapter, Japan has indisputably been influential for chipmusic with regards to the history of videogame music and consoles. Furthermore, the Japanese chipscene has also been particularly active online as well as offline, launching significant events primarily in Tokyo. Sweden is found in fourth place and this position firstly underlines the significance of the connection between the demoscene and the chipscene. From the perspective of SNA, Japan does not appear to be as established as experienced in ethnographic encounters. This is due to the minimum in-degree edges (other countries influencing Japan) which suggests that Japanese chipmusicians do not maintain social ties extrovertly, and that out-degree demonstrates the influence of videogame culture on various countries worldwide.

One of the most respectable chipmusicians, Goto80 – who also was one of my key informants – comes from Sweden. Throughout the years he has been active as a demoscener and a chipmusician, while he has significantly contributed to the development of chipmusic, its theory, and dissemination. In his narrative he explained the first steps from the demoscene to the chipscene:

I took the name sometime around 1995, I think. For demoscene purposes, and to use on BBS. :S I got into the demoscene via my brother when I was still a kid. Around 2000 when the chipscene started to emerge with micromusic.net etc, I was quite sceptical along with most other demosceners. Still, there's not much

overlap between the two cultures. So, yeah, there are a lot of differences. For one, the demoscene doesn't bother much with the outside world, whereas the chipscene is constantly trying to get confirmation from others. (Goto80 interview, 2011)

Almost every social agent I met in the chipscene made reference to Goto80 as an excellent chipmusician and a researcher of chipmusic. The significance of Sweden is also highlighted by the development of *Little Sound DJ*, one of the most popular and widely used trackers for the Nintendo Game Boy. *LSDJ* was created by Johan Kotlinski, also known as Role Model, a Swedish developer who was also active in the demoscene years. However, this is a similar case with Japan – influencing other countries but not being influenced externally, and thus is found at the bottom of the betweenness centrality rank.

In the chipscene network, the smallest node is Guatemala (betweenness centrality 0). It is worth noticing that Guatemala is found in the network only due to the impact on the chipscene of one of the most controversial chipmusicians, Meneo, who originates from the particular country. Meneo is known in the chipscene as the nude Game Boy musician. He has performed in numerous festivals around the world and is well-connected with Spanish chipmusicians – he often resides in Spain. Other than Meneo, Guatemala does not have a large scene, but his input is significant for the chipscene network.

Before Guatemala, one finds New Zealand (betweenness centrality 0). At the time of fieldwork, New Zealand was only starting in the chipscene. As one of my American informants explained, “New Zealand is complete unknown, at one point there was a YouTube video somewhere about the scene over there. There is about 4 to 5 artists who played a show somewhere, but we haven't heard much from there ever since” (Roger Cruz interview, 2013). The short documentary entitled *8 bit underground* features some

chipmusicians from Christchurch and Auckland who discuss their art, their connection with the Australian chipscene and the general sentiment of chipmusic-making.¹¹⁵

Moving up in the ranking of nodes-countries by size, Malaysia is found in the thirtieth place (betweenness centrality 0). As my European and American informants expressed, not much is known about Malaysia. After watching the documentary on chipmusic in Malaysia (*8 bit music – Malaysian chiptunes* [2010]) I spoke to one of the administrators of Chip Chip Hurray!, the online Malaysian community.¹¹⁶ Aimen talked to me about the first steps of the chipscene in Malaysia in 2007 and his “family of musicians”:

We organise events, make music, share and spread the word of love to our beloved lo fi music and graphics, etc. we are a family of musician making music for the love and for the fun of it. As for now we have 12-13 band projects in total. Ranging from many solo artists and 2 duos. (Aimen interview, 2013)

Aimen described the Colourama event that takes place in Malaysia and also informed me that local chipmusicians have also performed in other countries such as Indonesia, Singapore, and Thailand and that they self-fund their events. In his words, “[...] to get trusted in Malaysia is not an easy task. Especially in arts. So we say f that shit we fund it our self. As we can do anything that we want without restriction” (Aimen interview, 2013). This does not differ at all from the funding practices of the chipscene in other countries.

As one will notice, Malaysia is placed next to Indonesia (betweenness centrality 1.26) and the USA on the chipscene network. As explained in chapter three I am using the ForceAtlas2 algorithm which supports a spring electric layout, placing more connected countries closer and presenting them as neighbouring nodes. Malaysia is connected to Indonesia, Japan, and the USA. The network features in and out degrees which show the

¹¹⁵*8 bit documentary*. [2012] Directed by Ranjani Punnuchetty and Joe Bunting. New Zealand: Broadcasting School <<http://www.youtube.com/watch?v=atTaABaEwWI#t=456>> accessed 2/7/14.

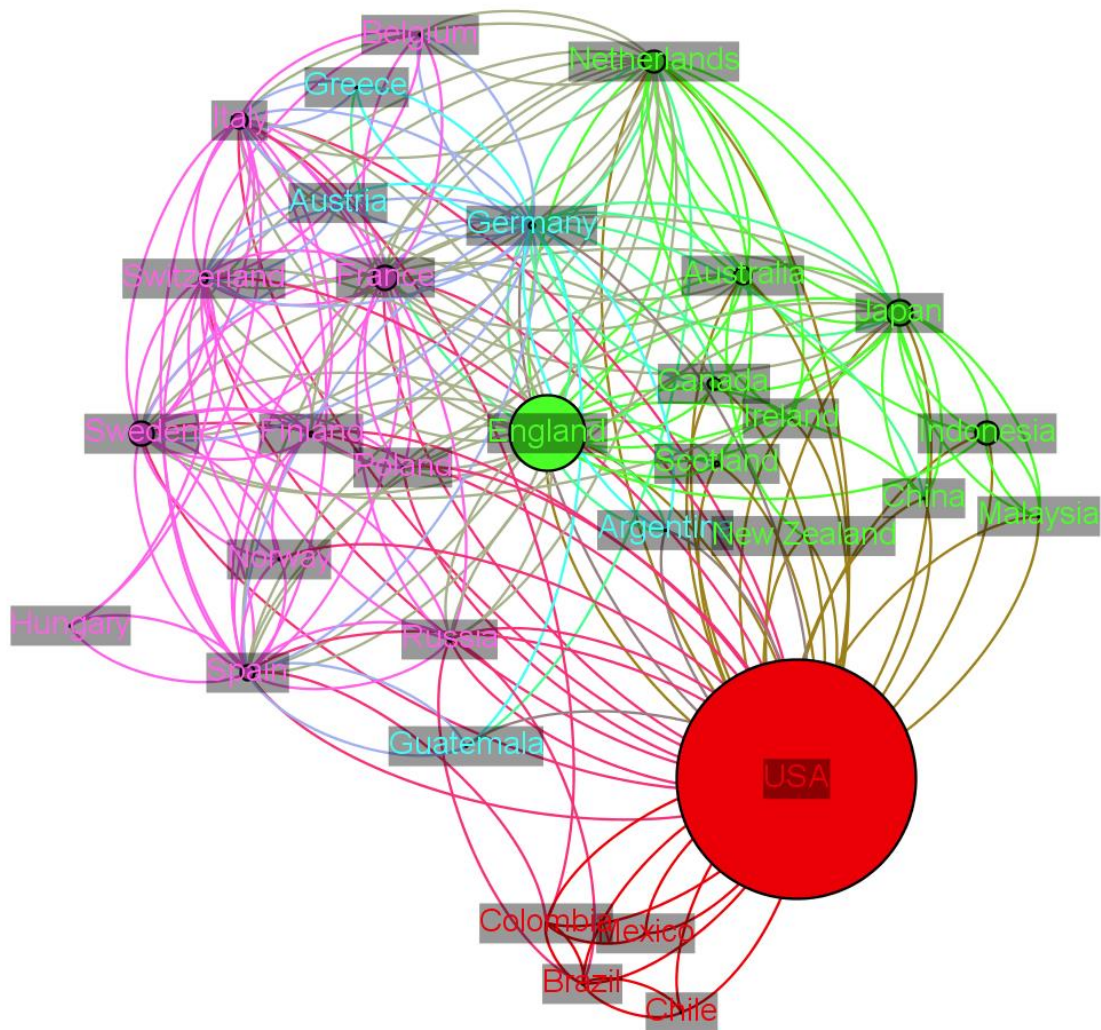
¹¹⁶*8 bit Music – Malaysian Chiptunes*. [2010] Directed by Shadtoto Prasetio. Malaysia: Grupku Production. <<http://vimeo.com/13113870>> accessed 2/7/2014.

direction of an edge from one node to another. Malaysia has one in-degree edge (Indonesia), which suggests that the Indonesian node is the actor. This means that Indonesia interacts with Malaysia (for example, when Indonesian chipmusicians perform in Malaysia). Similarly, this edge is returned by Malaysia (out-degree) informing us there is an action from Malaysia towards Indonesia (for example, when Malaysian chipmusicians perform in Indonesia). Generally, an out-degree shows the action of one country in another and it does not imply this is returned. Edges that are two-directional depict that this is a mutual interaction.

The appearance of Switzerland in the top ten of betweenness centrality ranking is rather significant. This position is due to the high number of reciprocated edges to other nodes (25 weighted degree when USA has the maximum, which is 51). This is attributed to the existence of micromusic.net and its significant impact on the European chipscene – which is also reflected by the position of Switzerland in the chipscene network.

The relations demonstrated on the chipscene network are a way to visually document the transnational flows of chipmusic collaboration. In the next section, I focus on the discovered communities by the modularity algorithm in Gephi.

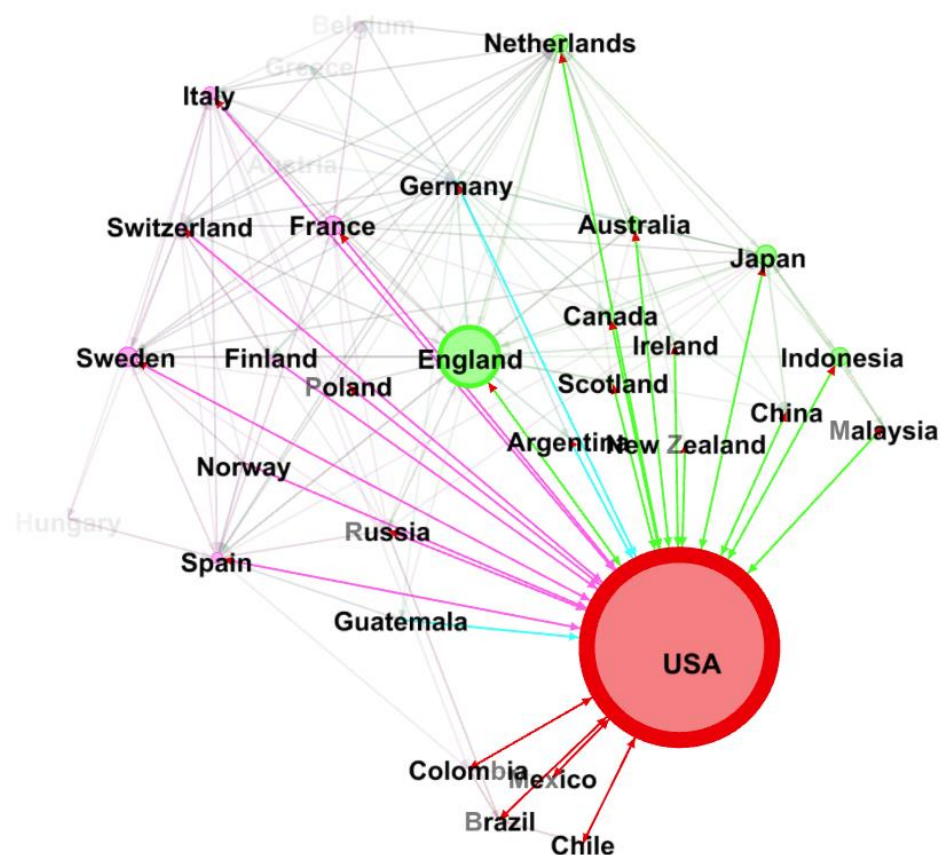
4.4.1 Discovered communities



Graph 2. The chipscene network in four colour communities (red, purple, light blue, green). The label font colour depicts clearly in which community each country belongs to.

The chipscene graph depicts four communities traced by modularity, the community detection algorithm on Gephi. Modularity displays ‘hidden’ communities which form around key nodes that act like hubs. Thus, one can locate inner communities within a network, or in other words, a network can be divided in these communities. The chipscene network reveals four communities (modularity class 0-3) formed around the nodes-countries: a) USA (modularity class 0), b) Spain (modularity class 2), c) Netherlands (modularity class 1), and d) Germany (modularity class 3). The produced graphs below

depict the four hubs that communities have formed around and their directed edges to other nodes, which are not necessarily part of these traced communities (the colour of the arrow shows which node the direction comes from). As Borgatti et al. have explained, modularity “compares the number of internal links in the groups to how many you would expect to see if they were distributed at random. Higher values mean that the algorithm has found more significant groupings” (Borgatti et al. 2013:195). The distinctive colours characterise each of the communities. I was particularly interested in finding whether SNA-found communities reflect ethnographic data regarding the internal order of the chipscene network. Three out of the four communities indeed, matched my ethnographic findings. However, one of them was completely unexpected.



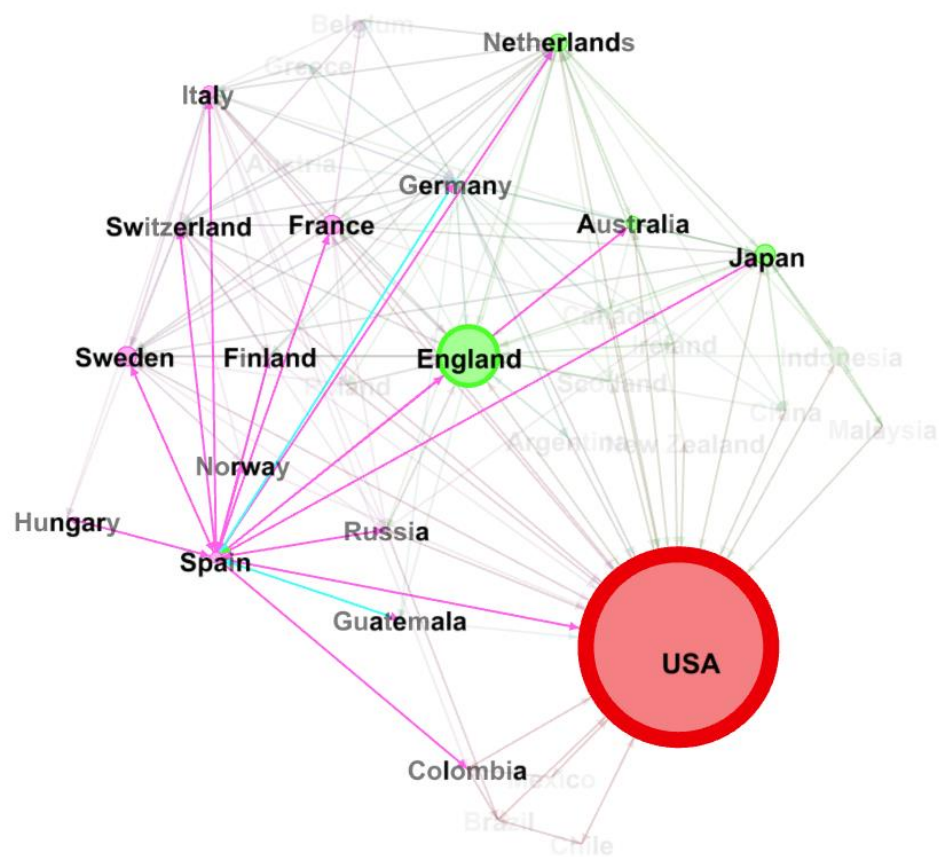
Graph 3. Community 1 (red colour only): USA.

The first community formed around the node-country USA, which is also the largest node of the chipscene network. As explained above, the size of the specific node is not surprising. The USA has 25 edges with other countries (see graph). If the chipscene network were to be seen as a map, then one can suggest that the USA positions four areas: the ‘island’ USA, the cluster ‘island’ of Colombia, Mexico, Chile, and Brazil (primary community detected by modularity), the ‘mainland’ comprising the majority of nodes, and the Asian ‘peninsula’, a cluster encompassing Japan, Indonesia, China, and Malaysia. In this sense, the USA becomes a strong link for South American Countries, where the chipscene is at an early stage.

More specifically, Colombia is particularly engaged in open street events. I briefly interviewed Rockman Navarro, a chipmusician originally from Bogotá living in New York, who spoke to me about his open street performances in Colombia, Argentina, and his future plans in New York. In the case of Mexico, there is one collective release (‘Reboot-Mexico’, Chip Con International), and as Roger, my key informant from the USA explained, the chipscene in Mexico started in the late 2000s by Chema Padilla (Chema64) (Roger Cruz interview, 2013). At an interview for the Chiptunes=Win! blog, Chema talked about the Mexican chiptune festival, Format, and the netlabel he founded, 56KBPS Records, because “there were no Spanish-speaking presence at the time.” (Chema, Chiptunes=Win! interview 2014). This echoes the argument on language in the chipscene which was illustrated previously in this chapter.

The chipscene is also rather new in Chile. Although there have been releases in Brazilian and British netlabels, there is not any further information on the local chipscene. Polish and Russian chipmusic has an equally distributed presence in the USA, Brazil, and several European countries. There seems to be an ongoing interaction with the chipscene at

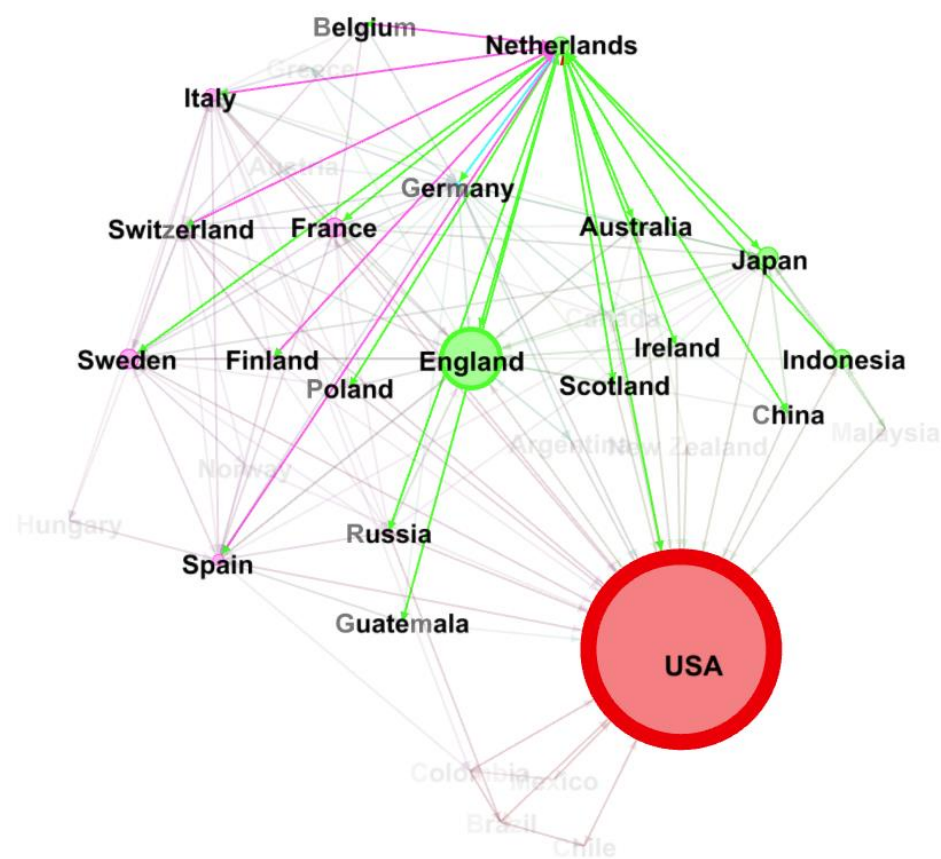
a transnational level, but also there are several local events in the aforementioned countries. Finally, Canada is linked to the USA node, although it is placed more centrally in the network (see in the ‘mainland’). These examples represented rather isolated cases within the chipscene network, either because the scene is still at a developing stage, or it never had the opportunity to properly flourish, as for example in Greece.



Graph 4. Community 2 (purple colour only): Spain.

The second community traced by modularity is Spain. Spanish presence was prominent in Europe during the time of fieldwork due to the production of the documentary *Europe in 8 bits*. In practice, the Spanish crew visited all the cities that featured chiptune

parties in Europe during the period 2010-2012. Prior to the performances they interviewed chipmusicians, organisers, and the audience. Javier and his team travelled to twelve European countries establishing connections with chipmusicians and also, they encouraged the organisation of events in Spain. *Europe in 8 bits* discussed local chipscenes, as for example the ones in Norway, France, the Netherlands, and the UK, but also introduces the audience to lesser-known ones, such as the Hungarian chipscene.



Graph 5. Community 3 (green colour only): Netherlands.

The third inner community of the chipscene network is expressed around the Netherlands's node. In 2009 the website micromusic.nl was launched online with the aim to establish the Netherlands microHQ. There was a developing interest in chipmusic which was

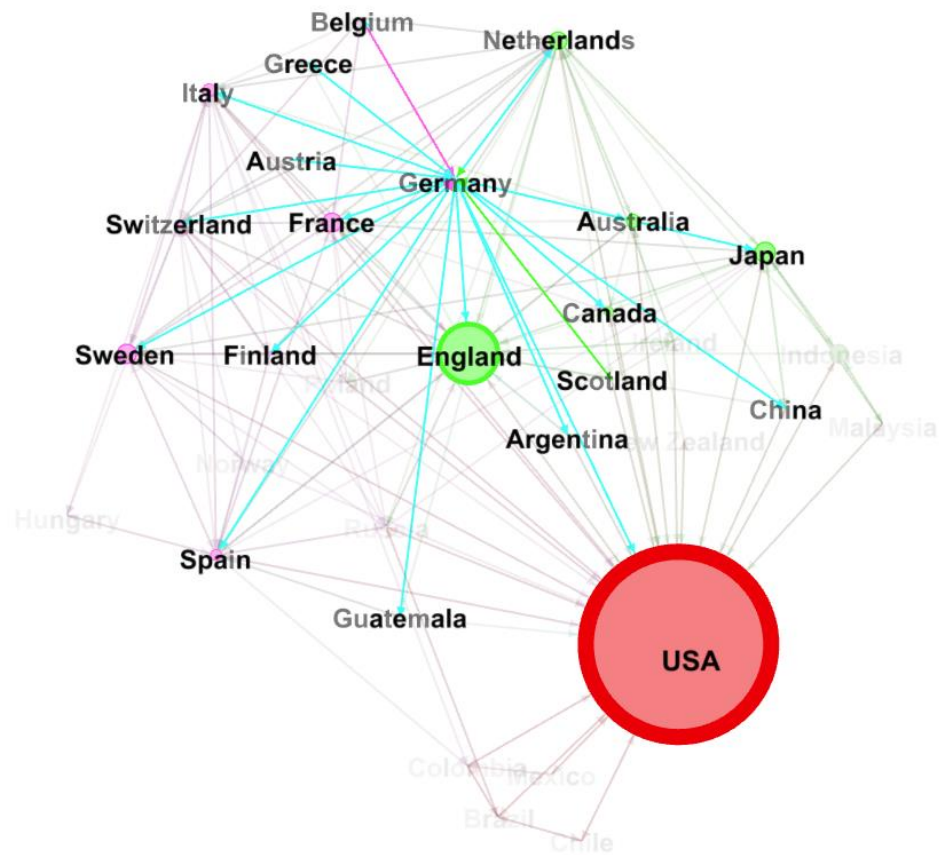
also demonstrated on Twitter. A few years later, this website changed name to eindbaas.org, and Eindbaas became one of the largest chiptune festivals in Europe. From the perspective of the USA, Roger expressed that “they [Eindbaas] seem to be the only place in the world with a consistent crowd for this type of music.” (Roger Cruz interview, 2013) While in the field, I observed interactions between the Netherlands and diverse countries, as mentioned previously in this chapter. It is worth noting that the Netherlands are in the same modularity class with England and were almost equal as hubs. From the SNA perspective, one could choose both countries as they are significant in this community. However, based on ethnographic data, the Netherlands have been more significant in the two-year period of fieldwork; all my informants always discussed Eindbaas and Netherlands-based events and actions (such as the move to buy the 8bc servers). England, on the other hand, has been more active in producing chipmusic – hence its central place at the network.

Before embarking on fieldwork, my supervisor, Martin Stokes, told me that there are things we miss when conducting ethnographic research. Ethnographers are not the all-seeing eye and informants do not reside in some kind of Benthamian panopticon. In my attempt to eliminate losses as much as possible by conducting digital and physical multi-sited fieldwork, I forgot this point. The position of Germany as the fourth community in the chipscene network reminded me the fact that ethnographers miss information. However, it also proves that ethnography can be enhanced by employing computational methods that do not rely entirely on the ethnographers’ experience.

When I conducted fieldwork in Germany, I found that the local chipscene was non-existent. The audience of events consisted of electro music fans, avant-garde enthusiasts, and people who wanted to have a night out. One of the events I attended, Worldtronics, took place in the *Haus der Kulturen der Welt*, the national centre for the promotion of

contemporary arts in Berlin. The building was designed in 1957 and was a gift from the United States. Chipmusic was featured as part of a three-day festival of contemporary music. Once I arrived at the event, I realised that this had nothing to do with any other chiptune staged performance I had experienced in Europe. The space was divided between the public area and the VIP area, where performers would relax, eat, and give interviews to the German channel ZDF. There was not a friendly, open atmosphere; in contrast, the people who were in charge were distant in their attempt to look professional for the documentary which was filmed during the event.

I discussed this incident with Jérémie, my key informant in Paris, when I visited him after the event. He suggested that this kind of atmosphere reminded him of events in the United States, where chipmusicians are usually separated from the audience and they are treated like rock stars (Jérémie Glafouk interview, 2012). I spoke to him about the people I met and he was surprised to hear I was treated in a rude way by someone specifically, particularly because he knew that person very well and was a significant contributor in the German chipscene. I attempted to contact other chipmusicians and I found dispersed releases in the USA and European netlabels. In all, my estimation was that Germany was not particularly significant for the chipscene network.



Graph 6.. Community 4 (light blue colour only): Germany.

And this is where SNA can be revealing. The network of Germany in the visualisation depicts 18 edges which is translated to 18 connections with other countries. At first, this is surprising considering that ethnographic information did not expose significant results. Examining these connections closely, one can see that the role of Germany is much more exciting and important than initially thought.

Firstly, a number of German chipmusicians do not live in Germany, but in other places such as the USA and Canada. However, they are also active in their host country. Secondly, several chipmusicians that live in Germany are not German. This is particularly strong in the case of Greece; Greek chipmusicians that live in Germany are particularly

active in Berlin and other main cities, but not necessarily in chipmusic-specific events.¹¹⁷ They primarily perform their music in experimental or electronic music events. This is not surprising seeing that the German audience tends to prefer these music genres – this was also reflected in my experience while I was in Berlin. In other words, chipmusic in Germany is co-opted in a larger network of electronic music.

Moreover, Jahtari, a German-based netlabel, features chipmusic releases from chipmusicians in a number of countries. However, only one release is attributed to a German chipmusician – the rest of the chipmusicians that released their chiptunes in Jahtari are from Australia, Dominican Republic, England (three releases), France, and Japan. The contribution of Oliver Wittchow is also significant for German chipmusic activity, as he is the developer of *Nanoloop*, the first chipmusic-making software cartridge for the Nintendo Game Boy. Finally, although there has only been one chipmusic-related event in Germany during the time of fieldwork, the particular event featured chipmusicians from Argentina, Scotland, the USA, Sweden, Germany, Spain and other countries, becoming a hub of chipmusic activity even for that night only.

Thus, the chipscene network highlights the significance of international connections and collaborations in order to construe transnational musical phenomena organised in local scenes. In the case of the chipscene, some differences between the national scenes are traced, particularly with regards to the politics of performance (see also chapter six). However, local chipscenes are similar in their core. Nardi in her research has also observed great similarities between groups of American and Chinese video gamers (Boellstorff et al. 2012:63), so a similar result in the chipscene is not particularly surprising. What is rather interesting here,

¹¹⁷ It is also worthwhile noticing that the netlabel Half Lesbian was founded by two Greek chipmusicians. Half Lesbian is not registered in a particular country, rather, the description suggests it is an ‘Internet-based record label’. Mano, the netlabel owner, highlighted that Half Lesbian does not identify neither as Greek, nor chiptune-specific. (pers. comm. 2013)

is the fact that network analysis can reveal the connectivity of seemingly remote nodes, as in the case of Germany. Hence, computational analysis offers significant insight into ethnographic research, revealing these ‘hidden’ patterns. In addition, an ethnographic perspective on quantitative data provides a more representative and accurate view on networks.

By adopting a bird’s eye view on the chipscene network graph, one can see the flows of production, collaboration, and communication across spatial and temporal dimensions (within the given limitations). In this holistic perspective of ethnographically visible elements as well as computational discoveries, one can see where chipmusic is happening and how people actually move. This analysis assists in understanding the transnational aspect of chipmusic, by breaking it down to translocal cultural spaces. Chipmusic histories differ from region to region based on cultural understandings of chipmusic. For example, Europe, due to its connection to the demoscene and its means of music production, is well-developed. It is also interesting how change occurs at different times. In the case of Indonesia for example, producers attempted to make chipmusic the next musical trend that would ultimately be used to promote Indonesianess globally. This has not been observed elsewhere in the chipscene network. Similarly, patterns of interaction between Greece, Italy, and Germany during the two years of fieldwork, suggest that despite the economic, political, and social ramifications of the 2008 financial crisis, chipmusic is on the mind of certain creators who express their stance against capitalist ways of music-making – for example, by not using any commercial music technology to compose music.

Understanding chipmusic in terms of global circulation and musical cosmopolitanism, is, then, significant for two reasons.¹¹⁸ Firstly, as previously outlined,

¹¹⁸ For a similar perspective on music globalisation and circulation see Novak 2013.

looking at chipmusic, one can understand how at different points in history, culturally different regions develop their musical culture in parallel, using the same means of production. The chipscene network visualises the flows of musical experiences that enhance collectiveness. Chipmusic is empowering in creating communicational bridges between cultures that are geographically dispersed. Secondly, and perhaps more importantly for the purposes of this thesis, the chipscene network reveals the relatively new characteristic of creativity, its potential to be networked as mediated in various digitally or physically-based activities (music-making, performing, employing social media for establishing of social ties and so on). Internet-mediated and transnational flows of information then, enable the movement and dissemination of ideologies regarding creativity globally.

Summary

This chapter looked at digital and physical manifestations of chipmusic worlds aiming at identifying ideologies related to creativity. The first two sections of chapter four examined ethnographic and other sociohistorical knowledge about the chipscene and presented the places of chipmusic and the inherent ideologies regarding networked creativity. The second part focussed on the SNA of the chipscene network to trace social ties that entail networked creativity in chipmusic.

Chapter 5. The aesthetic dimensions of chipmusic

Chapter four discussed chipmusic worlds as mediated in the broader chipscene network: in online places and in geographically dispersed locations. The previous chapter showed how the chipscene operates, uncovering layers of meaning regarding ideology, and the general ‘cosmology’ of chipmusicians based on ethnographic encounters and SNA. In this chapter the discussion is focussed on the aesthetic. In the following pages I firstly propose the theoretical and methodological framework for examining chipmusic aesthetics and centre on elements of chipmusic that demonstrate such aesthetic dimensions.

5.1 Theoretical and methodological directions towards aesthetics

At the time of conducting fieldwork in the chipscene, I had difficulty in conceptualising chipmusic as a form of art – an unintended ‘methodological philistinism’, to use Gell’s concept (1992:42), adopting an indifferent approach towards aesthetic value from any perspective, be it ‘indigenous’ to chipmusic or universal. There were two reasons that caused this. Firstly, I was attentive to the observation of musical and social processes whilst trying to immerse in chipmusic worlds. Therefore, little time was invested in looking at the cultural objects to form a theoretical perspective. Secondly, I was exposed to the multi-faceted ontology of chipmusic, that involved diverse cultural, social, musical, and visual layers, and all this at several spatial environments, given the multi-sited aspect of the fieldwork. This complex setting gave rise to discussions that stoked, to a certain extent, aesthetic discussions with chipmusicians on technological preferences for chipmusic-making.

The process of reflection assisted in furthering the conceptualisation of the dominant discourse regarding analog and digital technology. As I argued in chapter two, technology is centrally placed in the discourse of chipmusic creativity as it enables various chipmusic-

related activities, such as music-making, promoting, and performing, that were characterised by collectiveness and connectedness. The ethnographic part of chapter four discussed the nuanced ideologies that govern the chipscene network regarding creativity. In this section of chapter five I firstly aim at analysing the aesthetic dimensions of chipmusic practice and discourse with reference to chipmusicians' value system, cultural objects i.e. chipmusic-making platforms and chiptune sound, and aspects of technology such as limitations. In addition, in conceptualising chipmusic aesthetics, I aim at addressing theoretical interdisciplinary debates on musical aesthetics.

Following the methodological axis of this thesis, I turn to anthropology and ethnomusicology to establish a theoretical perspective on aesthetics. Küchler pointed out the epistemological disagreement of anthropology with aesthetic theories regarding the study of art that have emerged from the western canon (2002:57). In her chapter entitled 'The Anthropology of Art' she overviewed the development of the anthropology of art discussing early studies that were concerned with the effect of the subconscious and its expression in artworks (Munn 1972, Forge 1974), the history of ethnographic collections (Clifford 1988, Price 1989), and significant publications that fuelled the aesthetic turn emphasising the social relations between objects and persons (Thomas 1991, Gell 1998) (Küchler 57-58). Anthropological perspectives on art aim at understanding the art object in the context in which it is produced (Born 2010:182, Küchler 2002) and promote a cross-cultural understanding of aesthetics rather than a universalist approach.

One of the oft-quoted works that examined the theme of anthropology of art is Gell's *Art and Agency* (1998). Gell defined agency as an instance that occurs when an intention that is 'registered' with a human or non-human actor starts a causal sequence (1998:17). Gell's work was extensively criticised by Bowden who asserted that "all that glitters is not

gold analytically...what he is arguing is either much less original than it first seems, ethnographically uninformed or simply incorrect” (2004:309). Despite the criticism, which was well-supported and evidenced throughout his analysis, Bowden highlighted certain points that Gell succeeded in communicating. One such example is Gell’s argument that artworks serve as indexes of social agency. In this sense, artworks as indexes “motivate abductive inferences, cognitive interpretations” (Gell 1998:27) that are followed by a sequence of causal events. Bowden endorsed this with an example from his ethnographic encounters in the Sepik River society, where the members of each clan intentionally decorate ceremonial buildings they own differently in order to distinguish themselves as a distinct collective. The interpretation of these buildings correlates with ideas about political strength and artistic skill of the clans that own them (Bowden 2004:319). Gell also illustrated his argument with his example of the Maori’s 19th century ceremonial architecture.

In looking at the aesthetic value, Bowden identified several complications with Gell’s theory, particularly when he suggested that objects of technical complexity are highly valued and these values are the same cross-culturally (chapter five of *Art and Agency*, Bowden 2004:320). It is a truism that this argument is valid when examining chipmusicians’ value system but only from the perspective of first generation chipmusicians. Even in the same music world, aesthetic values are not universal. Bourdieu extensively analysed this point in his theory of the field of cultural production suggesting that every human or collective of human agents in a field act in a relational manner by positioning themselves in terms of difference or opposition to others in the field (Bourdieu 1971). If Gell had not refuted the sociological framework in his anthropology of art, he would have taken this argument into consideration.

Born highlighted music’s multitextuality considering that:

[...] music has no material essence but a plural and distributed material being. Music favours associations between musicians and instruments, composers and scores, listeners and sound systems,

music programmers and digital code – that is, between subjects and objects. Its multiple simultaneous forms of existence – as sonic object and aural trace, as the object of discursive exegesis, as intersubjective and embodied, social and ritualised performance, as notated or graphic score, as technological prosthesis or medium – indicate the necessity of conceiving of the musical object as a constellation of mediations which are not only discursive and ideational, but social and performative, visual, technological, and so on. (Born 2015:138-139)

In ethnomusicology an interest in indigenous, cross-cultural perspectives on music aesthetics was expressed since the early days of the conceptualisation of the field as the ‘anthropology of music’ that developed a comparative framework for the study of sound complexities – later coined as ‘ethnoaesthetics’ – in exotic musics. However, there were various challenges particularly related to the conceptualisation of key terms such as ‘aesthetics’ and ‘music’ (Manuel 2011:535) and the methodology in place when enquiring about music aesthetics. In his article on ethnomusicology and aesthetics, Manuel pointed out certain difficulties in defining music in indigenous peoples – what an ethnomusicologist considers as music, the people he/she studies may not (ibid 536). This is a known trope in anthropological perspectives of art as Gell has explored in his article entitled ‘Vogel’s net’ (1996).

The debate in ethnomusicology was closely related to philosophy, and even Merriam, who attempted to elaborate on the conceptualisation of the aesthetic, highlighted six themes that adhered to a primarily western perspective: a) psychic distance that demonstrates a detached appreciation, b) focus on form, c) emerging emotional aspects of sound, d) acknowledgement of beauty in music or the process, e) intention to create aesthetic object, and f) a philosophy of the aesthetic (Merriam 1964:261-269). Notably, all these characteristics were not found in the Flathead Indians and the Basongye whom he had researched as Manuel (2011) has observed.

As Manuel observed, a cross-cultural view of aesthetics as seen in the work of Kauffman (1969) yielded a discussion on music evaluation systems and their criteria, the

relations of these criteria to extra-musical aspects (such as other arts, natural phenomena, social interactions), coherent ideas about music from an indigenous point of view, and the ways that musical form as sound structure is to reflect a broader value system in their cosmology that extends to a philosophy of music inextricably connected to the philosophy of life (Manuel 2011:536). Nevertheless, these points somehow advance the field of ethnoaesthetics but ethnomusicologists were faced with further challenges.

Manuel clarified that the theorisation of ethnoaesthetics relied on empirical data collected during fieldwork. But ethnomusicologists appeared to be overwhelmed by the variety of musical styles and the perspectives on musical meaning, which together resulted in a multi-layered approach of music aesthetics (ibid 535). In his analysis, Manuel outlined three problematic conceptualisations that limited the aesthetic turn. First, the distinction between form and content, as in the case of musical form and lyric content depending on where the focus is placed in the particular group of people (ibid 538). Second, the understanding of music as functional or recreational in indigenous societies. And third, the contested rhetoric regarding emotional expression in music (which stemmed from western philosophy of music) posed issues of categorisation, as in the case of lamentation and weeping songs (ibid). However, Feld's research brought to light new information as his informants were interested in his recordings of weeping songs and this suggested "they may represent distinctive confluences of aesthetic creativity and direct emotional expression" (ibid).

Ethnomusicology brought significant changes in relation to the understanding of the aestheticisation process, which is more related to concepts of hybridity and genre. This was a two-way process. First, from the perspective of traditional musical cultures, the emergence and spread of popular media shifted the emphasis towards the recreational aspect of music,

stripping it from its functional aspects. During this process, commercial pop music introduced not only new sounds and styles, but also new aesthetic methods of appreciating music. Manuel outlined the impact of this process of aestheticisation in countries from Uganda to Trinidad (ibid 543). The second aestheticisation process occurred from the viewpoint of modern popular music, in which indigenous musical cultures were reappropriated and marketed as world beat (one such case was the music of griots of West Africa's Senegambia region (ibid)). The concept of aestheticisation is insightful when discussing hybridity and genre formations in music yet. So far ethnomusicology does not seem to have provided a coherent plan of action in researching, understanding, and analysing aesthetics. Ethnomusicology could provide significant insight into discussions regarding aesthetics that can be extended to other areas, such as the conceptualisation of genre, given its interest with the specificity of musical hybridity and the validity of its empirical methodology.

So where can one seek the theorisation of the aesthetic and as well as the methodological framework it can be examined? Born (2010) provided an insightful sociologically- and anthropologically-informed methodological and theoretical approach on art, which she views as cultural production (2010:172). In looking at sociological approaches on art, Born turned primarily towards Bourdieu's theory of the field of cultural production (Bourdieu 1990). She sought to establish a methodological and analytical framework of cultural production from the conceptual viewpoint of post-positivist empiricism that combines the theoretical model and empirical research (Born 2010:172).

Born proposed five interconnected themes for the examination of the cultural object: a) aesthetics and the cultural object, b) the place of institutions, c) agency and subjectivity, d) questions of history, temporality and change, and e) problems of value and judgement (ibid 172). In reviewing literature in the sociology of art she endorsed Zoldberg's distinction

between approaches that look at the art object as a social process (Bourdieu's work on the field of cultural production, 1990) and sociological analyses of the art object (see, for example, Becker's concept of art worlds, 1982) (Zoldberg 1990 in Born 2010:173). However, as she explained these perspectives failed to address the specificity of the aesthetic and the art object (ibid 174). Wolff's sociological aesthetics have been influential in shaping Born's theoretical directions as Wolff addressed artworks' value within their sociohistorical context, examined the appreciation of artworks in different temporal dimensions and the need for aesthetic categories and judgement for researchers (connecting it to Gadamer's concept of 'understanding' as a catalyst rather than a limitation), and acknowledging the relational aspect of the aesthetic when examining its specificity in discursive practices and its potential extra-aesthetic dimensions (Wolff 1983 in Born 2010:175).

From the perspective of anthropology, Born identified three innovative trajectories that can be supportive in depicting theory and methods of aesthetics of cultural production. Firstly, studies that examine the cultural object and its mediations (Morphy and Perkins 2006, Gell 1992 and 1998, Miller 2005, and Pinney 1997) (Born 2010:183). Secondly, in relation to the ontology of the cultural object as Michaels (1994), Feld (1994), Myers (2005), and Thomas (1991) have studied it (ibid:185). Lastly, in developing a "diachronic concern with genre and the genealogy of aesthetic practices" (particularly in looking at the work of Pinney 1997) (ibid 186). In what followed, Born juxtaposed the input of these anthropological perspectives onto the previous five conceptual findings she proposed.

Thus far, I have provided various theoretical, conceptual, and methodological views, challenges, and suggestions on aesthetics that utilise sociological, anthropological, and ethnomusicological concepts. In analysing all the aforementioned knowledge, I find common ground: the relational aspect (i.e. cross-cultural understanding, relational social

context, historical continuity, music worlds and universal spaces, and so on). Secondly, there is a stress on all sorts of connections (temporal, spatial, ideational, social, technological etc). And thirdly, the employed terminology supports these observations providing a visual and sometimes topological dimension: ‘entanglement of art objects and people’, ‘art nexus’, ‘field of cultural production’.

I have discussed the significance of the networked aspect of society elsewhere in this thesis. But even in this debate, it appears to be relevant and able to support a sustainable system of examination of aesthetic dimensions. There is a high degree of complexity in the theorisation of aesthetics – which is needed to analytically explain the ‘aesthetic’. However, a networked approach can be helpful in mapping, at least in a theoretical graph, which can depict an archaeology of aesthetics. I will employ SNA terminology to explain this theory.

Consider a network of ‘musical aesthetics’ that entails nodes that are human and non-human agents (as seen in the work of Gell and Bourdieu) connected with ties that have different weights. Nodes can have attributes and be labelled as cultural objects, artists, musicians, audiences, and institutions; nodes can have geographical information, or other social forms of classification; and they can exist in clusters or individually. The ties can be directed (reciprocated or one-way) or undirected (the reciprocity is assumed or not needed) and depending on which nodes are connected, demonstrate different attributes (for example, influence of an artist, value, patron relations etc). According to relational sociology in SNA, agents cannot escape the network but their nodes can be dynamic in ranking (size) and centrality. For example, Beethoven’s node would be small during his life but posthumously, his node would become bigger or smaller – depending on at which moment in history we would look at the network. The proximity of nodes can change, as well as their position in the network after new ties are made (or broken).

The aesthetic network can depict social processes and one can trace these processes and the connections between the human and non-human agents. Thus, agency can also be examined, as in Born's IRCAM research by looking at the people who were catalysts in shaping aesthetic dimensions. Furthermore, one can see the transformation of value and evaluation systems – which nodes affect that and in what ways? The network of aesthetics can also shed light on the cosmologies that ethnomusicology has required and their relation to the musical aesthetic, by focussing on the specific music world depicted in the network. The lineage of sound transformations could also be observed through a network of music technologies that have attributes related to timbre, social uses, limitations, etc.

Furthermore, the conceptualisation of the network of musical aesthetics is useful in two more ways that are central in the theorisation of the aesthetic dimension: temporality and spatiality. A network is tied down to time constraints but can also be timeless and thus, map the genealogy of aesthetic practices. One such example would be examining punk in the late 1970s which would be at the periphery of the network and 2000s punk revival which would be more centrally placed. Furthermore, the network can depict various temporal realities of the past and present, thus allowing us to examine temporality and change of aesthetics. Secondly, the layout of the network is defined by the algorithm used. In that sense, these conceptual algorithms can be geographical (e.g. examining the network of aesthetics in the UK at a specific time) and related to genre (mapping out the network of aesthetics of rock music).

What I argue for here is a networked understanding of aesthetic dimensions in which the themes presented in ethnomusicology debates as well as Born's theoretical and methodological directions are identified and analysed. The concept of the network does not

have an applied aspect here but it assists in tracing the aesthetic in flows of information and circulation.

In this respect, I will first define the social context of chipmusic worlds, turning to the anthropological theory of poetics entwined with materiality to provide a further theoretical layer regarding the examination of human and non-human relations in chipmusic. These perspectives are connected with the theories and concepts on aesthetics presented in this section. Secondly, the chapter is layered across three themes that have emerged from Born's directions and suggestions from ethnomusicology in looking at the aesthetic: a) the cultural object of chipmusic. This is split in two sections that entail sound generators in chipmusic (soundchips and their respective platforms) and chiptune sound, b) 'institutionalised' agency (online chipmusic communities take the role of 'institutions'), and c) the rhetoric of nostalgia. Through these themes I identify the process of aestheticisation in chipmusic, evaluation systems based on 'indigenous' perspectives of chipmusicians, concepts related to form and content of chipmusic, and issues of temporality and change.

5.2 Poetics and materiality in chipmusic worlds

Prior to analysing aesthetics in the context of chipmusic, I first clarify what that context is with an emphasis on chipmusic-making practices. The ideational context of the chipscene that was analysed in chapter four will be utilised here to inform chipmusic poetics that will lead to the discussion of the aesthetic dimensions of chipmusic practices and discourse in the forthcoming sections.

The use of the term 'poetics' needs some clarification here, as it often suggests different meanings in the ethnographic tradition. Originally the term was coined in antiquity by Aristotle, who used it in relation to drama and poetry, but in anthropology it has been predominantly used to describe the performance of certain processes in diverse ethnographic

examples.¹¹⁹ For example, Herzfeld employed poetics to explain the metaphorical sense of experiencing drama in self-performance and social relations among Cretan men (Herzfeld 1985:10), whereas Feld applied poetics in a rather linguistic context of bird sounds as a form of verbal communication for the Kaluli (Feld 1990:131). Stobart, then, studied the production of music as well as its extra-musical context, focussing on the “mutual interdependence of musical and socio-economic production of the ‘mundane’ and the ‘aesthetic’” (Stobart 2006:5) in Andean ritual practices.

One of the central aspects of poetics is evocation. “The poetic [...] reframes an everyday ground [that] stands ready to [...] *evoke more than signify*, to move more forcefully into the realm of feeling and sensation.” (Feld 1996:114) What is suggested in Feld’s work, and is also endorsed by Stobart (2006:6), is that meanings are evoked by, rather than embedded in, cultural symbols in a ‘poetics of production’.¹²⁰

Chipmusic poetics are understood as a theory of artistic creation that encompasses the fundamental principles of performative action (agency) and creative work, in a social context energised by political and power relations.¹²¹ In chipmusic worlds, the negotiation of behaviour, performance, and cultural objects, are related to an extra-musical field that is structured upon aesthetic ideologies, values, and beliefs.

¹¹⁹ There are two perspectives on poetics that emerge from Ancient Greek writings: firstly, Plato construed poetics in relation to the conception and creation of an artistic work as inspired by the observation and discovery of the Ideal in everyday life (or nature, as he specifically wrote). He saw art as an imitation of reality and a representation of the Ideal and thus criticised it, proposing that art undermines reality (*Republic III*, 392c-403c). Secondly, for Aristotle, poetics encompassed the inextricable connection of drama, (poetic) text, and myth, analysing – with the use of Platonic terminology – meanings and mediated messages of myth whilst relating it to *catharsis*. These two perspectives had an impact on anthropological and ethnomusicological thought regarding poetics. This is why in structural anthropology and ethnomusicology, poetics embrace performance and practice driven by an underlying discourse.

¹²⁰ One could also construe the argument on evocation from a phenomenological perspective, and more particularly, in terms of ‘bracketing’ (*Einklammerung*) as described by Husserl. Here, the significance of mental/noetic meanings is stressed, setting aside direct meanings of their material substance (Hua XXVII:173).

¹²¹ It should be mentioned here that in the field of cultural studies, Krims wrote on musical poetics as music theory (Krims 2008:27) but his theory lacked of any anthropological or ethnomusicological information on poetics. This perspective is not similar to what I am suggesting here.

First I will look at cultural objects. The concept of evocation and entrenchment of meanings through the cultural objects in chipmusic ties in with material culture perspectives. I am looking at materiality theory from the viewpoint of anthropology, and more specifically, as conveyed in the work of Miller examining “things only as defined by the relationships that constitute them” (Miller 2005:6). Following other perspectives on digital materiality in the research field of music and sound, such as Tacchi 1998, Wallach 2003, and Born 2005, my purpose here is to trace the aesthetic dimensions of cultural objects.

Materiality theories focus on the importance of material forms (Miller 1998:3). As Miller explains in the introduction to *Material Cultures: Why Some Things Matter* (1998), perspectives on material forms in the social sciences were deemed insignificant in the 1970s and 1980s. However, the outcome of the last thirty years during which material culture studies developed showed that in fact things *do* matter: material forms do not consist in a different stratum in a culture, rather, they demonstrate how meaning is culturally entrenched in things as much as other aspects of social worlds. As Tacchi highlighted, the study of objects as well as their consumption and use reveals patterns of significance and meaning on personal, social, local, and global levels (Tacchi 1997:13). By looking at things, we can see how meaning is negotiated, mediated, and changed in a given culture.

In the section that follows I examine the *things* related to chipmusic – or, from a social-economic standpoint, the “goods” to use Weber’s terms (Weber 1947:151). These are the fundamental devices that produce chipmusic. Therefore, I look at chipmusic-making platforms with an emphasis on their soundchips and their aesthetic characteristics responsible for chipmusic production. In addition, I centre on the poetics of relations that chipmusicians develop with these soundchips to understand how aesthetic meaning is evoked or attached.

5.3 Soundchips and aesthetic particularities

A chip is an integrated circuit. In principle, it is the miniature of a large-scale electronic circuit that has separate electrical components, such as resistors, diodes, and capacitors. Soundchips are responsible for diverse sound functions, such as sound generating, filtering, sampling and amplifying. Two kinds of soundchips are relevant here: PSG and PCM. Programmable Sound Generators (PSG) produce sound waves (square, triangle, etc) and noise, whereas soundchips based on Pulse-Code Modulation (PCM) reproduce digital samples. Furthermore, some CPU-integrated soundchips are also discussed.

I should clarify here the difference between 8-bit computer architecture and 8-bit audio resolution. When discussing chipmusic-related platforms and their soundchips, these concepts do not always overlap. For example, the Nintendo Game Boy is an 8-bit videogame console, but its sound is of 4-bit resolution. In both cases, a bit represents the smallest part of information. “8-bit computer” refers to computer architecture, and more specifically, to the Central Processing Unit (CPU), otherwise known as the processor (i.e. how many pieces of information related to diverse computational functions can a computer transmit, and how fast can this be done). In audio terms, “8-bit sound” addresses the bit depth of a digital signal: the number of bits of information in a sample, therefore, its resolution. In comparison, “8-bit resolution in sound” is a characteristic of an electronic counterpart called digital-to-analog converter (DAC), which is placed in the aforementioned platforms. The primary function of a DAC is to convert digital signal to analog, which will trigger an amplifier and produce sound in the form of air waves. It is also useful to point out that when classifying a home computer as 8-bit, 16-bit and so on, this characteristic is attributed to the CPU rather than the audio resolution.

All soundchips have a specific number of audio outputs. Soundchips distinguish chiptune sound from all other kinds of music, as they are responsible for the timbre as well as other sound properties, characteristic of the relevant computer architecture (8-bit, 16-bit, 32-bit, and so on). In the following paragraphs I explain the technical characteristics and the sound properties of the soundchips in chipmusic-making platforms. More particularly, I discuss TIA, Pokey, Paula, CPU-integrated soundchips in Nintendo consoles, and the SID. Where possible, I am using example of chiptunes that are linked on YouTube.

The Atari VCS included a display and sound soundchip known as the Television Interface Adapter (TIA) that supported two channels of one-bit sound. TIA produced a “bizarre tonal spectrum, comparable to two detuned pianos with random keys taken out” (Carlsson 2010, see also Collins 2006). An example of this particularity is found in ‘Jargon’ (2013), a chiptune composed by Jake Davies using assembly code.¹²² The two channels are utilised as percussion and a bass and melody channel. The drum channel consists of noise sounds that are represent kick, snare, and hi-hat. The second channel is divided between a low-pitch bass and a higher-pitch melody that fills in the end of the bass phrase.

The Pokey soundchip (short for Potentiometer Keyboard) handled sound in the particular versions of the Atari, offering four square-wave channel capacity (Collins 2008a:213). As Phelps explains, the characteristic sound of the Pokey is attributed to a process he calls “sampled noise”: noise generators are “fed into a ‘Sample and Hold’ circuit” that can be reproduced at different frequencies (Phelps 2007:129). In addition, the Pokey has a wide frequency range as the channels can be combined for up to 16-bits of frequency resolution (Tomczak 2011:93). There is a richer sound when comparing Pokey- and TIA-based chiptunes due to the presence of more channels but also the wider frequency range.

¹²² Jake Davis (2013) ‘Jargon’, <https://www.youtube.com/watch?v=0sdEDOt-KkE>, accessed 6/1/16.

See, for comparison, Son of the earth and Donald Fakk's 'Digi dick' (1991) tracked on Atari ST.¹²³

The fundamental difference between the Amiga and other home computers was that the soundchip, known as Paula, was integrated in a chipset (the Original Chip Set, OCS), a collection of diverse soundchips that dealt with different computer functions. Paula primarily handled sound properties. However, in contrast to the other soundchips mentioned here, Paula was a sample-based soundchip (based on Pulse-code modulation, PCM) and did not have any on-board oscillators. All sounds were digitally produced in four channels with the aid of the CPU with 8-bit resolution. The use of samples in Paula distinguish its sound but its aesthetics are closer to synthesizers, as demonstrated in 'Introfronty' (1989) by Dezeerator.¹²⁴

Both the NES and the Game Boy did not contain a separate soundchip (Carlsson 2010:14), rather the CPU integrated sound utilities. The NES CPU, manufactured as Ricoh RP2A03 or 2A03 (NTSC version) and RP2A07 or 2A07 (PAL version), produced four oscillators (two pulse waves, one triangle wave, one noise generator) and one channel that reproduced low-quality digital samples) (Phelps 2007:132). As Driscoll and Diaz (2009) note, the NES featured a similar polyphonic audio capability to the SID. Carlsson highlighted that NES's sound diversity was attributed to the fact that the sound aspect of the CPU was designed by a composer, Yukio Kaneoka (Carlsson 2010:15). The Nintendo Game Boy was also based on 8-bit computer architecture, and featured a CPU-integrated polyphonic soundchip, the Pseudo-Audio-Processing Unit (PAPU) (Collins 2014:390, 399). Game Boy had three 4-bit semi-analog tone channels (two square waves and a variable wave

¹²³ Son of the earth/Donald Fakk (1991) 'Digi dick', <https://www.youtube.com/watch?v=YtAAsoij4R0>, accessed 6/1/16.

¹²⁴ Dezeerator (1989) 'Introfronty' <https://www.youtube.com/watch?v=xJxTOKuW2Dw>, accessed 6/1/16.

channel) and one noise generator. Often in Nintendo-based chiptunes one will notice the reverberated vibrato effect achieved by using the same waveform twice, at slightly different frequencies – at the expense of two channels. This technique, however, allows less space for percussion and bass (see, for example, a NES cover of ‘Overworld’, a theme taken from the videogame Final Fantasy II).¹²⁵

The C64 contained the Sound Interface Device (SID) chip, designed and programmed in assembly language by Robert “Bob” Yannes. One of my key informants pointed out that the SID was initially destined to process 32 independent voices, but Yannes did not have the time to finalise it, as the C64 had to be launched (Janne Suni interview, 2013). The SID produced three channels whose tone could be chosen from the following selection of 8-bit resolution waveforms: sawtooth, triangle, square wave (variable pulse), and noise (Collins 2008a:215). Moreover, the SID was able to accurately imitate traditional musical instruments whereas a number of effects and filters could also be applied (ibid). It is also interesting that the noise channel could additionally operate as a sampler, simulating a low-frequency oscillator (LFO) and a tremolo effect, thus creating more realistic sounds (ibid).

Overall, there are some tensions regarding SID’s aesthetic properties. On the one hand, the SID was praised since the time of the demoscene. As Carlsson explained to me:

[...] in the C64 demoscene nobody talks about limitations. People just like these machines, and it’s natural to use them. You don’t complain about the machines. You don’t say that they are bad = worse than modern mainstream things. You like them for what they are. With clothes or cars or furniture or art or architecture or whatever — it’s easier to see that old does not necessarily mean worse. Or less doesn’t mean worse. Or simple does not mean less useful. There is a quality that is hard to discuss in rational terms. Just because one likes 50’s architecture doesn’t necessarily mean that s/he is a nostalgic. It’s hard (impossible?) to prove, but it might as well be seen as an aesthetic preference among other things. With 8-bit tech there are unquestionable qualities as well, which modern machines do not have. (Carlsson 2012, pers. com.)

¹²⁵ Moo66 (2010) ‘Overworld (Final Fantasy II)’, cover, https://www.youtube.com/watch?v=ZZE_VgnrMlM, accessed 6/1/16.

The primary role of music technology is to provide power over sound (see also Jones 1992:51). In Carlsson's account, the C64 is perceived as high technology. Although chipsceners employ modern computers that are, technologically speaking, more powerful and able to sustain multiple actions, the platforms used for chipmusic-making activities are perceived as higher hierarchically. This conceptualised high technology enables chipmusicians to experiment with sound on an empirical, abstract level. Born has also observed the same pattern at IRCAM in relation to analog music technologies and computer patch languages:

Analog music technologies took the form, crudely, of boxes with controlling devices that could be played around with – knobs turned, faders moved, different patches made [...] Instead, computer patch languages were characterised by profound abstraction, complex scientific conceptualization[...] (Born 1995:182)

Chipmusician Dan Behrens at his TEDx talk in Buffalo (2013) identified the problem of opacity in digital technology, similar in what Born has described in the case of IRCAM. He illustrated this argument using an example of a high-end audio software for electric guitar editing (“heavy guitar process”) which had two options, “aggravate” and “smash”:

The latest versions have had this focus, easier to use pre-sets. And I've been noticing this trend in software. They wanna make it so anyone can use it – and this is a good thing – but when all you do is move the “aggravate” fader, you don't learn anything about the EQ curve being applied to the signal. You don't learn anything about how the dynamics are being affected by a multi-band compressor. Or any other wizardry that we use as audio engineers. Essentially, your learning process is stunted. [...] and essentially what this creates is homogenisation. (Dan Behrens, TEDxBuffalo 2013)

From the perspective of Behrens, digital technology curbs one's learning process, which seems to be a significant part of creative practices in chipmusic. Behrens' commentary is not surprising. The importance of learning and, generally, of knowledge is a significant aspect of creativity in other electronic music cultures. As Boulez has expressed: “The musician must assimilate a certain scientific knowledge, making it an integral part of his creative imagination” (Boulez 1976 in Born 1995). The educational aspect of creativity

enhances virtuosity. Although one would expect that chipmusic might be nearer the concept of de-skilling as construed by Katz (2004), i.e. no specified technological and musical knowledge is required in order to compose music, evidently, this is not the case as far as the chipscene is concerned. Although prior knowledge is not a prerequisite for chipmusic-making, in fact, chipmusicians develop their skills over time by following educational strategies and acquiring experience in composing. From an institutionalised, classical music perspective, this type of musical education is entirely informal. However, in chipmusic, it represents the formal learning process.

Behrens' disapproval of digital technology does not come as a surprise for yet another reason that is related to computer technology. Turkle highlights the difference between "hobbyists" and "transparent technologies", and "users" and "opaque technologies" (Turkle 1995:32-35). As she explains, hobbyists "[...] are passionately involved in mastery of the machine itself." (Turkle 1995:32). They take pleasure in knowing everything about their platforms. In contrast, users are interested in using computers for instrumental purposes, i.e. to compose a document. Turkle clarifies that transparent computers enable hobbyists in their learning process, whereas opaque computers allow users to stay at a surface level of computer actions without revealing any of their inherent mechanisms. For Turkle, opaque technologies are a simulation of transparent technology. Thus, Behrens' argument could be considered as a neo-purist perspective that reifies virtuosity in chipmusic, which is only achieved by following formal music learning strategies as these are dictated in chipscene habitus, i.e. examining online educational guides, avoiding simulations, and adopting a hands-on perspective.¹²⁶

¹²⁶ As Jose Torres conveys, certainly the initial interest in chiptune differs from person to person. However, what remains is which discourse chipmusicians choose to adhere to: "[...] [P]eople do genuinely become interested in chiptunes for a number of good reasons. What I see though, is that there are all kinds of discourses: some people are non-conformists, others are purists, and so on." (Jose Torres interview, 2013)

The C64 and other chipmusic-making platforms, provide complexity and abstraction in using trackers and programming to manipulate soundchips, whereas soundchip emulators on modern computers represent the digitally gestural exploration of knobs and faders on a digital audio workstation. This critique comes primarily from first generation chipmusicians, as outlined in the previous chapter. As my informants have expressed, the limitations are not strictly seen as constraints, but as enablers of creativity.

However, during fieldwork, I often met chipmusicians who claimed to be able to distinguish sounds produced on original platforms due to hardware imperfections. For example, the faulty envelop functions of the Commodore 64 (C64) produced a particular loopy effect. Carlsson (2010) extensively discussed the difficulties in composing chipmusic on the C64 due to the hardware issues that increased its unpredictability. Often, glitches in the form of clicks and noises appeared without an apparent reason, as he argued. Perhaps these faults were due to the fact that the SID was not a finished project when it was released. Nevertheless, certain chipmusicians, such as Ed that Carlsson interviewed, developed their own software in order to be able to have more control over the SID's properties.

Platform/type	CPU resolution	Soundchip/kind	Channels	DAC resolution
Atari VCS/2600, videogame console	8-bit	TIA (video and audio), PSG	2	1-bit
Atari 400/800, home computer	8-bit	Pokey, PSG	4	8-bit (combined 16-bit)
Atari ST, home computer	16-bit	YM2149, PSG	3	8-bit (combined 16-bit)
Commodore Amiga 1000/500, home computer	16-bit	Paula, PCM	4	8-bit
Commodore 64, home computer	8-bit	SID, PSG	3	8-bit
Nintendo NES/Famicom, videogame console	8-bit	RP2A03, CPU integrated	5	4-bit
Nintendo Gameboy, videogame console	8-bit	PAPU, CPU integrated	4	4-bit

Table 5.1. Chipmusic-related platforms and their soundchips.

I will finish this section with a more general conclusion regarding the conceptualisation of 8-bit technology and the 8-bit aesthetic. Table 5.1 summarises the technical aspects and capacities of the aforementioned early home computers. What is worthwhile noting, is that not all platforms are based on 8-bit architecture and that in fact, not all soundchips have 8-bit sound resolution. However, the term ‘8-bit’ conventionally applies to all in the chipscene, and often chipmusic is defined as ‘8-bit’ music. Technically speaking, this categorisation does not reflect the technological characteristics of chipmusic-making platforms, rather, a merely general idea of technology and soundscape in the 1980s.

In the section that follows, the examination of aesthetics is steered towards the aesthetic discourse of online communities and their impact on the process of aestheticisation in chipmusic.

5.4 ‘Institutionalised’ agency and aesthetic transformations

Born (1995) analysed how institutions can be powerful in influencing and gearing aesthetic directions. In the chipscene, online communities can be conceptualised as ‘institutions’ with specific hierarchies and structural modes. These have been analysed in chapter four and my aim in this section is to show how online communities have affected evaluation systems and aesthetic dimensions in chipmusic, demonstrating thus the interplay of power relations in the chipscene.

This influence was firstly encountered in micromusic.net as mediated by the curatorial group that approved chiptunes for release and was masked under the rubric ‘quality filter system’. In the history of micromusic.net 856 chiptune albums from 530 individual and collectives of chipmusicians were released during the period 1999-2013. However, micromusic.net counted almost 24000 registered members.¹²⁷ One can assume that not every member had the opportunity to release their music on that particular netlabel. QFS selected chiptunes that were considered of high value and quality. As suggested by other chipmusic scholars, ‘quality’ is subjective, and micromusic.net promoted chiptunes of a particular style and form that employed early home computers and videogame consoles for their creation. Chipmusicians considered this selection process as elitist, arguing it lacked diversity (Yabsley 2007:14). And as Carlsson noted, “Micromusic.net gradually faded in popularity, perhaps because of the jury that selected which music to publish” (Carlsson 2010:11).

The actions of QFS can be interpreted from a Bourdieuan perspective as a way to position micromusic.net in the field of chipmusic. QFS aimed at sculpting an identity for

¹²⁷ This count reflects the end of the research timeframe. Just for reference, the number has increased to about 26000 users (June 2014).

chipmusic and structuring a particular aesthetic that would be associated with micromusic.net. As the motto suggested, micromusic.net was ‘low tech music for high tech people’, where high technology was embodied in early home computers and videogame consoles (see my argument in the previous subsection for this). In this sense, the aesthetic aim was low fidelity music that was characterised by the technological complexity of its making and the musical simplicity of the outcome.

More than twenty years ago, Manuel explored cassette technology in North India. He observed that the power invested in state run media causes commercial pressures that extends to broader issues such as deculturation, manipulation, monopolization, and homogenization (Manuel 1993:3). Further, he argued that an alternative to such pitfalls would be the spread of “inexpensive grassroots-based micro-media” that can empower social groups and bypass mass media – new media such as cassettes (ibid). One can perform a paradigm shift from cassettes to internet technologies and their empowerment of the user. In the chipscene, this empowerment was expressed when chipmusicians expressed their opposition towards micromusic.net’s evaluation system. Gradually, this led to the downfall of micromusic.net and the development of 8bc.

In 8bc social power was decentralised. The community was not associated with specific figures, authorities, or a closed value-filtering system. 8BC emerged as an opposition to the distinguished position of micromusic.net and promoted ‘upload democracy’. The online community was entirely user-generated and its users had the power to shift chipmusic aesthetics to any direction they wished for. This individualistic aspect goes hand in hand with Rainie and Wellman’s (2012) concept of ‘networked individualism’ that promotes autonomy in a networked society. However, as history showed, this socioaesthetic autonomy led to the conceptualisation of 8bc as a collective creation that was

owned by everyone who realised its digital presence. In this aesthetic democracy, there was no place for Torres, the legal owner of 8bc, who plagiarised code in the development of his chipmusic-making cartridge.

The online communities that followed, chipmusic.org and the ucollective.org, have adopted a more distanced approach towards musical aesthetics. However, their emergence was synchronous with significant changes in digital technologies related to music circulation, such as Bandcamp and Soundcloud. These online services grew in popularity and chipmusicians used online communities to promote external links to their chipmusic releases. The particular temporality of micromusic.net and 8bc's creative agency was in line with first and second chipmusician generations. The noted change in aesthetics and practices also signalled the third chipmusician generation that positioned themselves in the field of chipmusic by differentiating their chipmusic-making methodology and aesthetics. The aestheticisation process in the third generation involved technological and musical hybridity. I will return to this argument and analyse it in chapter eight. The following section looks at the second cultural object of chipmusic, chiptune sound.

5.5 The aesthetics of chiptune sound

In the previous subsection I analysed the place of online communities as 'institutions' that shaped musical aesthetics and evaluation systems in chipmusic worlds. One of the previous sections looked at soundchips and their equivalent early home computers and videogame consoles as the cultural object of chipmusic. To continue the deciphering of the networked conceptualisation of aesthetics in chipmusic, I turn towards the second cultural object of my case study, chiptune sound. Firstly, I examine 'rawness' and 'bleepiness' as attributes of chiptune sound. Secondly, I look at the historical and aesthetic development of chipmusic-making computer environments, as these have been shaped by technological limitations. Thirdly, I analyse three central stylistic characteristics of chiptune sound that

have emerged from the developmental process of chipmusic-making environments and their inherent technological limitations: blocks, arpeggios, and looping.

Blocks, arpeggios, and looping will be analysed based on ethnographic accounts that will follow in this subsection. Moreover, from a theoretical perspective, these stylistic characteristics recall Tagg's concept of 'musemes' that he dubbed as "minimal units of expression" (1982:45) in popular music, as well as the extension of this into Middleton's 'musematic' repetition (1990:269-270). Musematic repetition is the repetition of small sound units that in popular music are usually in the form of riffs. For Middleton, the purpose of riffs is to balance "the temporal flow, challenge any 'narrative' functionality attaching to chord patterns and verse sequences, and 'open up' the syntactic field for rhythmic elements...to dominate" (1983:253). In looking at blocks and arpeggios as musemes and looping as musematic repetition, I explore the aesthetic dimensions of chiptune sound.

Chipmusicians express their preference towards chiptune sound as it is 'raw', stressing its primitive character as opposed to 'polished' sounds produced by modern music technology. This binary opposition echoes Lévi-Strauss's structural analysis of the raw and the cooked based on sensory experiences (Lévi-Strauss 1964). Chipmusicians are 'cooks', in a metaphorical sense, who ensure that raw sounds are well-prepared before their release for public consumption ("to fix the obvious flaws", echoing Sunni's statement). This rawness in sound is valued as it offers numerous creative opportunities for the chipmusician-cook'. In principle, this binary opposition is inherently different to Lévi-Strauss's, since the classification comes directly from the informants and not by the researcher, as the term 'rawness' is introduced by chipmusicians.

Another adjective used to characterise chiptune sound is “bleepy” (Carlsson 2010, Tonelli 2014, Nova 2014).¹²⁸ ‘Bleepiness’ is a characteristic of chipmusic platforms’ timbre and was once associated with videogame sound, but its meaning is re-appropriated in the chipmusic context, as Tonelli underlines (2014). Terms related to the onomatopoeic word “bleep” are often used in the chipscene to describe sounds, but are also widely used in the chipmusic vocabulary, for example, as names of festivals, chipmusic-making cartridges, or even chipmusicians’ pseudonyms. Nova made an interesting observation with regards to the temporality of chipmusic, arguing that bleepy sounds “[...] both now [in chipmusic culture] and at the time [of the videogames], represent an idealised vision of a now-dated tomorrow” (2014:74). In this sense, chipmusic is both anachronistic and futuristic, which is an interesting observation to make for a musical genre.

Chipmusic-making involves a screen-based working practice, to use Waters’ term (2000). Firstly, particularly until the employment of other musical instruments in chipmusic-making, composing always involves looking at a screen – be it connected to an early home computer, a videogame console, or a digital audio workstation with soundchip emulators. Secondly, the social aspect of participating in online communities, promoting, circulating, and performing, and all related digital practices, also are screened, using modern computers, tablets, smartphones or any other relevant digital technology.

The visual environment of chipmusic-making experienced a significant transformation in the early days of the chipscene. At first, composing music on early home computers was a challenging task, particularly because music could not be play-backed while composing. As one of my informants highlighted:

¹²⁸ Nova (2014) defines “bleep” as a high-pitched sound in chipmusic. Tonelli points out that the terms “bleepy”, “blippy”, “blip”, and “bleep” have been used to describe early game sound aesthetics and sound effects of arcade games (Carlsson 2008a and Collins 2008 in Tonelli 2011:151).

In the early 80s all the original chiptuners (Rob Hubbard etc) wrote their music directly as a program without a tracker or any music software at all. You would need to write the music without listening to it a lot of the time. You would write some music, and then to hear what you did you would need to compile your program. (gwEm interview, 2012)

In this practice, code was the only visual aspect that could be looked at to make a sense of the composed music. The challenge that was posed by the lack of live listening while coding fed into the evaluation system of chipmusic at the time, promoting algorithmic beauty (the coherence and clarity of code). Collins underlined the importance of programming skills for computer musicians that not only opens up new sound worlds, in which the musician is the first to set foot in, but also allows the creation of new software (Collins 2011:31). The change in practices arrived with the development of a visual environment that allowed music to be played live:

Later trackers were written by these musicians to help making the composing process easier, but the first ones were still very limited and barely better than hand coding. At least you could listen to the music without compiling the code first(!) (gwEm interview, 2012)

Lysloff briefly outlined the making process of a chiptune using trackers, and described it as the manipulation of “sound samples in almost limitless ways” (Lysloff 2003:33). Contrary to Lysloff’s assertion, trackers provide very limited ways of making music, considering that all relevant soundchips have specific technological limitations. Carlsson emphasised that chipmusicians centre on limitations rather than the creative potentials of a platform (Carlsson 2010:15), which can be the premise for the formation of a style, or music personality, hence authenticity assertions and exceptional affective experiences. Dittbrenner in his study of chiptunes separated four technological limitations that are of interest to chipmusicians, two of which are internal to the soundchip (polyphony and timbre) and two are external factors (processor speed and frame-rate) (Dittbrenner 2007, Carlsson 2010:15).

The concept of blocks emerged from a discussion I had with one of my key informants in relation to musical flaws and the characteristic structural form of music patterns in trackers:

MP: Are musical flaws related to harmony? Melody?

JS: Yeah, and many times to the structure of the tune. Because music made on trackers tend to be “blocky”. You polish and polish a 4 bar section. Then another one. And another. Then you try to connect these blocks. Continuity perhaps?

MP: So in first place there’s a more vertical thinking, and then, horizontal.

JS: Yes! Good way to put it.

(Janne Suni synchronous online communication, 2013)

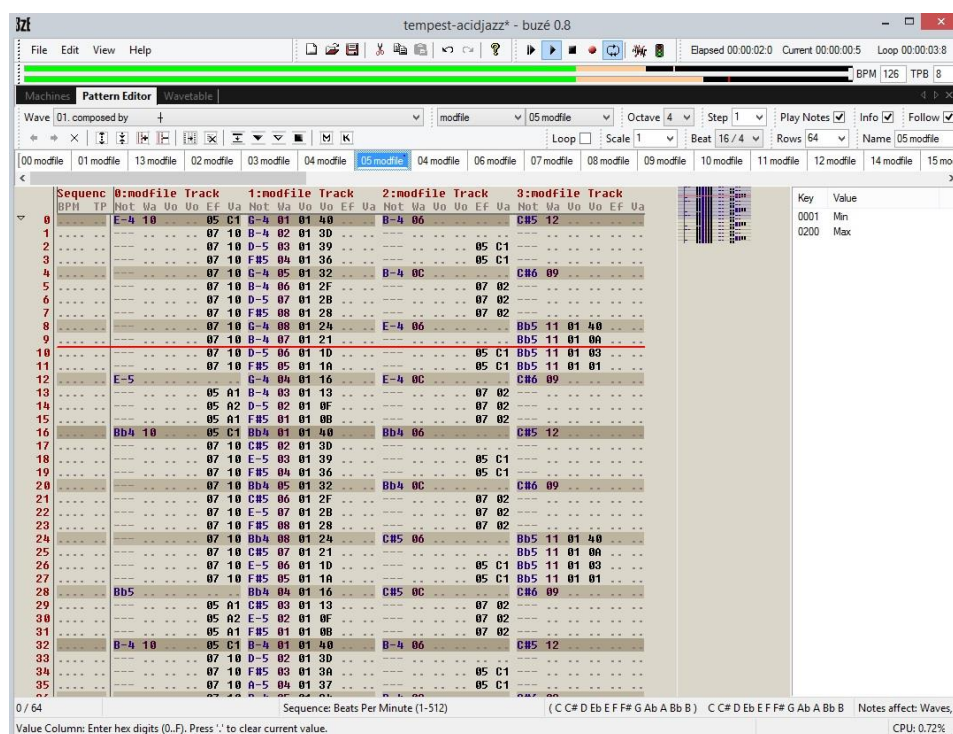


Image 5.1. Screenshot of BZE tracker playing Tempest’s Acidjazzed evening (2000).

As Lysloff explained, one has to code every aspect of music in trackers, such as pitch, duration, volume, and sound effects (Lysloff 2003:34). The fundamental characteristic of tracked music is that it appears to be in a vertical composition. Janne referred to the composing process as a series of connection between “blocks” of music. Image 5.1 depicts in BZE tracker one of Janne’s compositions (“Acidjazzed Evening”, 2000) using his alias “Tempest”. This is a four-channel chiptune (modfile tracks 0-3). Every note is written in letter notation and represents a sound frequency translated to pitch. The red line that cuts across the channels in the middle shows which lines are played at the same time – it follows

tracked music in a similar manner that the playhead does in Digital Audio Workstations. However, in DAWs the playhead demonstrates playback in a linear, horizontal way, whereas in trackers it is exhibited vertically.

The vertical layout of trackers often has an effect on how chipmusicians compose chiptunes. For example, one will notice that chiptunes sound “blocky”, as Janne described, i.e. successions of 4-bar musical structures. The concept of sound as blocks, or ‘blocks of sound’ is also used in the discourse of DJ culture when describing sampling techniques and the building of new musical formations (Hall and Zukic 2013:loc.2198).

A second characteristic of chiptune sound is the use of arpeggios. One may find that chiptune arpeggios resemble Glass’s arpeggiations that, as the *Times*’ critic Henahan has observed, sound like Hanon and Czerny exercises (Kostelanetz and Flemming 1977:177). Furthermore, in electronic music, Carlsson has observed the similarities between the aesthetics of chiptune arpeggios and the ones used in Raymond Scott’s “Cindy Electronium” (1959), which was composed on the Electronium, an electronic instrument which functioned as a sound generator and a sequencer.

Videogame composers were first to introduce arpeggios as a technique to overcome the technological constraints (Collins 2008a). As Carlsson explains, arpeggios provide rich harmonic structure in chiptunes, which can be achieved by employing one channel only, allowing other channels to be occupied by bass lines, percussion, and main melodies (Carlsson 2010:18). The use of arpeggios in chipmusic suggests that its aestheticisation process has been affected by videogame music aesthetics.¹²⁹ This argument can also be supported by looking at the SNA analysis in chapter four. This is mainly demonstrated by

¹²⁹ Collins has highlighted that the sound aesthetics were not an option at the time, rather, a direct result that stemmed from the technological limitations (Collins 2008b: Kindle loc. 168).

the influence of Japan (betweenness centrality 31.90, ranked eighth and third according to SNA and ethnographic data respectively) on the chipscene network.¹³⁰ As previously analysed in chapter four, the high number of out-degree ties shows the significant influence of Japan to the other countries of the chipscene network due to its historical connection to videogame music.

As highlighted in chapter two, power is a concept that may emerge in SNA (Crossley 2015). Although Castells refuted the concept of centralised power in the network society, he endorsed the idea of negotiated systems of power enforcement (Castells 2009:47). SNA demonstrated that power is not centralised in the chipscene network, but distributed between centre and periphery. For example, take the cases of England (central node that diffuses information fast to the network), the USA (peripheral but powerful node), and the Netherlands (peripheral but highly influential to the rest of the network).

Japan's high ranking in betweenness centrality suggests that it was a powerful chipmusic world. This was due to its connection to videogame music. This influence has affected chipmusic, and one can trace videogame aesthetics as they are bisociated, to recall Koestler's term (1964), in certain chiptune works. One such example is Ultrasyd's “今すぐ踊ろう! (It Probably Will Dance Now!)”, which aesthetically almost functions as programme music evoking images of gameplay (through repetitions of basic rhythmic structures, fast arpeggios that set the beat of the gameplay, sound effects that can be linked to unlocked achievements in a videogame). In fact, a collective from Australia created a music clip based on Ultrasyd's chiptune featuring “a videogame-obsessed boy who builds a lemonade stand, so he can afford to buy a rare [videogame] cartridge”.¹³¹

¹³⁰ For data see Table 1, p. 157.

¹³¹ Source: <http://www.theloop.com.au/ryandeel/portfolio/ultrasyd-it-probably-will-dance-now-music-video/93692>, last accessed 3/1/16.

To return to my argument regarding arpeggios, I find that in chipmusic they are widely used not necessarily as a result of inherent technological limitations of a platform or soundchip, but as an aesthetic preference towards this technique. Additionally, Carlsson (2010) suggests that the extensive use of arpeggios in chipmusic is a “crowd-pleaser”, i.e. arpeggios are musical elements that the audience expects to hear in order to appreciate a chiptune.

A second stylistic technique appropriated from videogame music is looping. Loop is a “cyclical repetition” (Butler 2003:90). As a result of the “blocky” style in chipmusic composition, some chiptunes tend to be repetitive as they are based on looped 4-bar patterns. Particularly in the case of *Nanoloop*, repetition is somehow expected, since the specific software is a step sequencer as well as a synthesizer.¹³² One can compose a short melody or beat using the sixteen steps (4x4) (image 5.2) and then save in the bank up to fifteen slots per channel (four channels in total, two rectangular waves, one custom wave, and one noise, depicted as r,l,s, and n) (image 5.3), which will be played according to the chosen sequence. Chiptunes composed on *Nanoloop*, then, often consist of layered patterns of harmonic and rhythmic structures. One such example is “Ninja Tape Machine” (2008) by Sally Zero. The bass melody is an arpeggio supported by a straight 4-bar drum rhythm. The drum and bass sections remain the same while the primary melody begins and, as the chiptune develops, they are slightly altered in order to follow the density of the developed melody. Towards the

¹³² It is worth noting that the built-in tempo function in *Nanoloop* differs slightly from time signature of digital audio workstations. It seems that when it comes to technical aspects, certain chipmusicians can find ways to identify sounds produced on original platforms; this listening mode demonstrates their perceptual agency, which suggests that how we hear a performance depends on where we focus our attention (Monson 2009:25).

end, there is an outbreak of noise during which the bass line is the only channel that plays the original arpeggio.

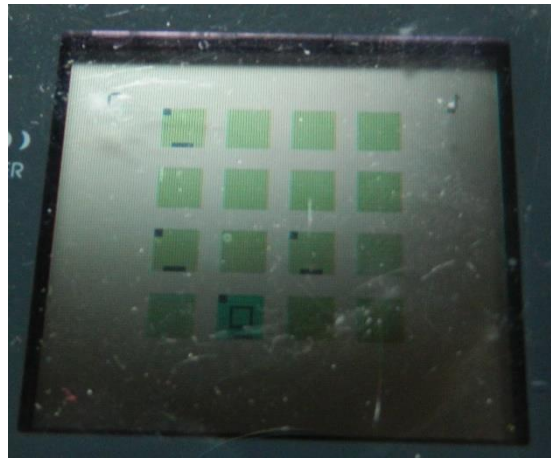


Image 5.2. Picture of Nanoloop 16-step pattern matrix on the Nintendo Game Boy.

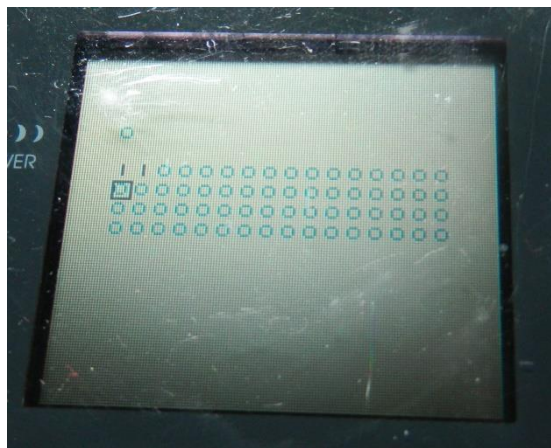


Image 5.3. Picture of Nanoloop File Menu (bank) on the Nintendo Game Boy.

One example that exhibits the characteristic of repetition in tracked chiptunes is “Chipdancers” (2010) by Ultrasyd, who used *Renoise*, a Windows-based tracker, Nintendo Game Boy, and Atari to compose this chiptune. It is an uptempo tune (134 bpm) and in every beat there are four arpeggio triplets. During an interview, Ultrasyd talked to me about “Chipdancers”:

The main part was Renoise. And I had to line-input going to my PC: Atari for chip chords, and another one for a bit of Game Boy, with some distortion on it. All was synced via MIDI. Actually, for this song I was quite UNINSPIRED. Let me listen to it again ... That was one of the very first songs where I experimented with Renoise, and sidechaining. The beat is very simple. I just created a monochord bassline, put some fast chip-y chords. The build-up is simple ... Filter at the beginning. Then when it really starts, I added some synth, hi-hats, and voice samples made on Atari.

The game boy is the thing that starts around 01:00. It’s only a WAV channel with some effects, as said before. Disto [*distortion*], maybe various filters. Its melody is very simple too. I did that in a hurry, but well ... It was for a demoparty and the tune ranked quite good in the music contest.

The work on the sound itself is bad. At that time, I wasn't used to make electro track, and I had cheap speakers. So in all my tunes, I always put too much basses. Nowadays I hope it's better. But EQ [equalizer] really sucks on this one. With headphones it's OK, or if you listen to it at home. But at the party place, on the big sound system they had (party PA I think it's called), it was just horrible, and I felt like I had to hide under a table, really. VROOOOOMVROOOOM, basses ruining it all. (Ultrasyd interview, 2012)

Although Ultrasyd did not consider “Chipdancers” as a good chiptune, the audience evaluated it differently. “Chipdancers” always propelled the audience to dance, and for this reason, it was one of the most popular chiptunes in DJ-sets. In the context of club/dance music, repetition is highly appreciated as it allows one to gradually develop dancing moves on a stable beat. Furthermore, as Suni points out, repetition is an inherent part of the learning process: one follows a number of music-making methods in order to learn new structures, which “forward your composing process and at the same time make composing repetitive” (Janne Suni synchronous communication, 2013).

In this sense, blocks, arpeggios, and looping represent the musematic repetition in chipmusic, to use Middleton's term (1990) and appear to have a dominant place in the chiptune form. However, this causes certain tensions regarding chipmusic as genre. If all chiptune sound is characterised by the aforementioned form of musematic repetition, then how are chipmusic subgenres differentiated (as, for example, in the cases of bit-pop, nintendocore, chip unce, chipbreak, and chip bass, to name a few)? I will leave this question open for the moment as the genre genealogy of chipmusic as well as its differentiation will be looked at chapter eight. The last section of this chapter will look into the rhetoric of nostalgia as an extra-musical evocation in chipmusic.

5.6 The rhetoric of nostalgia

For outsiders, chipmusic is often connected to nostalgia, retro mania and the passion for videogames.¹³³ In popular music, nostalgia is omnipresent, be it embodied in ‘vintage’ musical instruments that are thought to possess a magical power from the past (Théberge

¹³³ This perspective is broadly expressed in popular media, particularly due to McLaren's ‘8-bit punk’ (2003).

1997:120), or in pop songs using nostalgic linguistic meanings “Remember when...” (ibid). Nostalgia also becomes a genre, and compilations such as “Golden Hits”, helping us “organise our sense of the present and the past our notions of youth and adolescence” (Frith and Horne 1987:142 – 43 in Théberge 1997:120). From the perspective of chipmusicians, the rhetoric of nostalgia is two-fold: two opposites that are infiltrated through multiple levels of social contexts, and thus, levels of negotiations, values, and methods of production.

Carlsson has extensively commented that nostalgia and anti-nostalgia represent two contrasted discourses in the chipscene (Carlsson 2010:43). Music has the power to evoke extra-musical processes such as collective memories (Stokes 1994). In chipmusic, cultural objects afford and evoke meanings. Chipmusic poetics are structural modes that express the discursive binary of emotions versus logic. On one level, this process of memorisation reflects the past of first and second generation chipmusicians with an aura of nostalgia for the sounds and visual experiences of 8-bit platforms. Chiptunes evoke thoughts of a time of innocence, of when musicians were young, and perhaps more sincere or naïve.

On a second level, chipmusic produces an ersatz nostalgia, to use Appadurai’s term (1996), for third generation chipmusicians, who are not old enough to have lived in the 1980s. The evocative power of chipmusic, thus, also enacts sentiments and emotions that are (re)lived through chipmusic-making or listening to chiptunes.

However, Carlsson argued that some chipmusicians express their anti-nostalgic feelings for chipmusic primarily because the word ‘nostalgia’ “seems to hold negative connotations of a naive and reactionary idealisation rather than creative uses” (2010:43). Anti-nostalgic chipmusicians wish to attach new meaning to a picture of someone holding a Game Boy: it is not about playing videogames, it is about making music. It is about the

interplay of this ambiguous image, play versus work, fun against seriousness. First generation discourse asserts that chipmusic meaning must be stratified upon an anti-nostalgic view; the medium is the message and feelings or emotions do not belong in this line of computational, mechanical thought.

These nuanced ideologies about nostalgia are not tied down to temporal dimensions in the linear notion of time. One may change perspective regarding this view depending on one's need for position (or opposition) in the field of chipmusic – to utilise again Bourdieu's theory. The rhetoric of nostalgia is relational in chipmusic cosmology. This suggests that chipmusic ideology – in relation to nostalgia and other ideas, such as the system of evaluation – transcends the generational aspect to which it is usually defined in chipmusic scholarship (for example, in Nova 2014). Therefore, nuanced ideologies in chipmusic can be seen as conceptual categories which chipmusicians can adhere to at any moment in their career. This is expected in a networked society where social agents are able to influence one another across spatial and temporal dimensions.

Summary

Chapter five analysed the aesthetic dimensions of chipmusic by employing an interdisciplinary theoretical and methodological framework. In this chapter I explained the employed framework of aesthetic analysis and centred on aesthetic discourses that emerge from chiptune sound, soundchips, online communities, chipmusicians' evaluation systems, and the rhetoric of nostalgia. Chapter five marks the end of the second part of this thesis that focussed on people and the music. The last part of this thesis, part three, encompasses three chapters based on three case studies related to chipmusic creativity: performance, copyright, and differentiation. Throughout this thesis the aforementioned challenges for chipmusic have been briefly outlined. The last three chapters aim at becoming a concrete backbone in order to support the primary thesis argument on networked creativity.

PART III – CHIPMUSIC IN PRACTICE

Chapter 6. Networked performances in chipmusic

In the first two parts of this thesis I addressed theory and research methods, analysed the chipscene network, and clarified what kinds of creative process are at play in chipmusic, and what I understand by ‘creative’. The third and last part centres on chipmusic in practice. Continuing the theme of creativity, my aim here is to focus on three areas that affect creative practices in chipmusic. Thus, in chapters six, seven, and eight, I present chipmusic in practice through the perspectives of performance, copyrights, and authenticity, respectively, underlining how such perspectives are further complicated by the networked character of chipmusic.

Chapter six looks at musical and social structures through performance practices of networked publics in chipmusic. Regarding performance, Stokes emphasises that music provides the means by which social spaces can be transformed (Stokes 1994:4). As I have previously demonstrated in chapters three and four, chipmusic practices challenge the idea of space, considering that the chipscene is an online and transnational network of musicians. Although social space and the formation of places in digital and physical realms, remain important in terms of how this musical culture is expressed, communicated, and mediated, I find that there is a shift towards another aspect of the social, which is characterised by the development of computer-mediated communication in the twenty-first century: digitally and physically-sustained networks.

In this chapter, I argue that performance is a means of sustaining the chipscene network. The need for connectedness is an inherent characteristic of social networks (Rainie and Wellman 2012:loc. 7433). In networks, there is a need to be connected, to share more information, and exchange feedback about one’s creations. In fact, connectedness is a

characteristic of successful networking (Rainie and Wellman 2012:loc. 7433). Here, I will show that performance is perceived primarily as a social activity aiming at the connectedness of the chipscene network.

In anthropology and ethnomusicology, the significance of performance, in a broader sense, has been extensively pointed out in previous research. From the perspective of anthropology, in everyday life, performance reveals patterns of expression of one's self-identity and is largely dependent upon audience's attention (Herzfeld 1985:10; for music performance and audience see Frith 1988:205). The anthropological kind of performance refers to how one behaves in a particular sociocultural context.

Performance has always been an inextricable aspect of music, especially until the advent of recording and reproduction technologies in the early twentieth century. Before this, the end of any musical composition was to be performed. By looking at performance practices as well as human-instrument interaction (the *ergonomics*, as proposed by Baily) one can discover the principles of a particular music system (Nettl 2005:142, Baily 2008:122-123). Performance is about the experience of sound through listening (Frith 1988:12, see also Negus 1999 and Cook 2014) observing, or participating; it offers the possibility to look beyond the construction of music discourses and symbolic representations (Stobart 2008:14). Moreover, performance is a "creation-in-process" (Toynbee 2000:53), a creative practice that evokes meanings (Frith 1988:205), which are embodied by performers and interpreted by the audience. In principle, performance does not directly explain "what is music" – although it can offer insight into the definition of musical genres – but reveals what it allows people to do.

Performance then, bears multiple meanings. This chapter will demonstrate how social relations, values, experiences, collective practices, as well as people's relationship to technology are construed in chipmusic by juxtaposing examples of diverse kinds of performances.

In this thesis, I have avoided the use of the term "live". The primary reason is because this term is highly problematic for chipmusic. As has been outlined in chapter five, chipmusicians can save sequences of their chiptunes in trackers. These sequences can be replayed and edited later. To produce "live" chipmusic, three or four chipmusicians are needed – one for every used channel. However, chipmusicians in their majority compose music individually.¹³⁴ Thus, they often use pre-recorded sequences of their chiptunes when performing. In that sense, one cannot use the term "live" to refer to chipmusic performances. Auslander has extensively analysed liveness and the economics of performance (Auslander 1999, 2000). Although it may appear only natural to step on his division regarding live and mediatised performances, this cannot be possible in chipmusic because "live" performances may also be mediatised – and this gradually becomes the norm – in the case they are streamed online. In addition, economic aspects of performances are rather different in chipmusic than other popular musics, considering that it is a self-sustained musical culture that embraces alternative capitalist economies such as crowdfunding.¹³⁵ The only connection to Auslander's ideas is the desire of proximity, a concept he borrows from Walter Benjamin. Consumers tend to desire to be nearer the cultural product, and as I will explain in this chapter, chipmusic performances extend this idea of proximity in the case of screened performances.

¹³⁴ See also chapter four.

¹³⁵ I examine the economic infrastructure of the chipscene in chapter four.

Henceforth, two kinds of performance interest me here. Firstly, I examine *staged* performances that presuppose the physical presence of chipmusicians-performers and audience. This type of performance takes place on any type of stage, be it at a festival, party, videogame-related event, or in the streets. Secondly, I distinguish *screened* performances that are mediated through a computer screen and require synchronous or asynchronous digital presence for the duration of the performance. For example, during exclusively online events, performers and audience may be physically in different geographical places, but they meet at a digital space, for example the website that hosts the online event. Online spaces function as platforms of interaction between performers and audience. It is worth noting that this division into staged and screened performances is not strict, and one may find hybrid performances. For example, certain performances may be staged and screened at the same time, as in the case of offline events that are simultaneously streamed online.

6.1 Staged chipmusic performances

The history of staged performances related to chiptunes began in the 1980s, when demosceners, the precursors of chipmusicians, presented their demos at demoparties that took place in cities across Europe.¹³⁶ For demosceners, programming music and graphics was the primary way to perform (Pasdzierny 2012:178). Demoparties were significant for two reasons. Firstly, as places of competition, demo evaluation occurred at these events. Ultimately, the results of demo competitions defined social status in the demoscene. Secondly, demoparties represented an opportunity for demosceners to physically meet, regardless of where they lived. Certain annual demoparties, such as the Assembly (Finland) and the Gathering (Norway) counted thousands of participants.

¹³⁶ Demos were real-time multimedia presentations displaying demosceners' skills in music, graphics, and programming (Reunanen 2010:46-47). These characteristics were evaluated by other demosceners who attended demoparties, based on technologically puristic aesthetics.

I should mention at this stage that from a theoretical perspective I see staged performances in chipmusic in the sense of “performance” for popular music studies and ethnomusicology (Frith 1988, Middleton 1990, Toynbee 2000). I also examine “metamusical aspects” (Middleton 1990:242), such as kinaesthesia, that evoke extra-musical meaning. In addition, I focus on the dramaturgy and rituals of staged chipmusic performances. In this section I analytically describe what chipmusic staged performances are, how performative spaces are transformed, as well as the meanings that are interpreted by the audience.

6.1.1 ‘8-bit ‘em all’: Staged performance in the field

One of the first parties I attended was ‘8-bit ‘em all’ in Paris, set on the outskirts of the French capital, in the rough neighbourhood of St. Denis. I was directed by my French informants to catch the regional train, the RER, and if I did not have enough money to pay the fare, then jump over the bars at my final destination. I arrived at St. Denis RER station in the early afternoon on the same day of the event – I ended up jumping over the bars as I had bought the wrong type of ticket, assisted by other passengers who did not speak any French, but seemed to know the process well. The area did not lack colours – graffiti, buildings of diverse architectural character, and a seemingly large community of migrants, artists, and some outcasts, ranging from drug dealers who did not hesitate to make a deal outside the station, to beggars, locally called *clochards*. As soon as I arrived, I called Marine, my main point of contact in Paris at the time. She gave me directions to the 6B, the local “place of creation and diffusion” (*lieu de création et de diffusion à Saint-Denis*).

I found 6B, a large, box-shaped, modern building on the bank of the river Seine, after a five-minute walk from the train station. I entered the building to find a large open-plan space, where some works of art were exhibited. I was instructed to reach the first floor, where ‘8-bit ‘em all’ would take place. On the left side of the lift, there was a bar and the area where netlabel representatives set up tables featuring their releases in CD format. Continuing on that side, on the far left there were some rooms in which chipmusic-making workshops were set up, and straight ahead there was the stage. On the right of the lift, there were several rooms down a narrow corridor. A table was blocking the way to that area.

The spatial arrangement of the first floor was distinct. There was a clear division of front and back areas. Marine gave me access to the back, which was for the private use of performers and organisers. Firstly, I made my way to the front area and started talking to some chipmusicians who were already there. ‘8-bit ‘em all’ was scheduled to start at 14:00 and finish at 8:00 the following day – timings which were kept to my surprise. I soon took a place in the workshop, where I was instructed how to make a circuit-bent instrument but also, how to compose a chiptune. I had brought along my Game Boy and *LSDJ* cartridge, and my tutor for the day, Morusque, showed me how to make a chiptune.

Once creating a tune, one could connect their Game Boy to a monitor to allow other people to see one’s creation. I found someone who already did this and people started gathering around to see how he would develop his melody. This was not an advertised performance of the event, but still, the audience was keen on watching the live coding he did. My identity as a chipmusic researcher was known there, and somebody started talking to me about the demoscene and how coding live was a performance “back in the day”, meaning the 1990s. The importance of code for the first generation was often demonstrated in chipmusic events. In one of the e-mails Nils Dittbrenner sent me, he narrated how Goto80

would display his tracker code using a laser beamer while performing on his Commodore SX-64.¹³⁷ However, as Nils explained, very few people could understand the code and the majority of the audience was there to listen to the music, and, simply, enjoy a night out (Nils Dittbrenner e-mail communication, 2014).¹³⁸ Although not everyone could understand the code, this was a way for Goto80 to perform his identity at the time.

There were several people at the 6B who participated in the workshops. Others, would linger around the front area chatting, smoking, and drinking alcohol. I was surprised that smoking was allowed, and someone explained to me that 6B was, in fact a squat. Hence, there were not any rules in the legal sense that applied there. The only rule that seemed to be followed, was that the audience was not allowed at the back area. While wandering around backstage, taking advantage of the privilege I was granted by Marine, I encountered some drug use, in which I was invited to partake.¹³⁹ Having a productive discussion proved to be challenging, so I stayed for a while and then moved on to other rooms in the back area. Most rooms resembled construction sites – one in particular, was a carpentry. Marine told me that the building was run by artists, some of which lived in.¹⁴⁰ I developed a better idea of the place later on the night, when I visited the second floor, where artists lived – free of rent – and worked.

Chipmusicians took over the stage of the event early in the evening. On stage there was a big workbench on which a number of laptops, mixers, and other electronics were placed (image 6.1). A projector was also installed facing the wall behind the workbench. The line-up consisted of more than ten chipmusician acts, originating from diverse European

¹³⁷ Nils was a demoscener who published an analysis of chipmusic synthesis (Dittbrenner 2007). He contacted me online when he found out I was writing a thesis on chipmusic.

¹³⁸ See also the discussion on the similarities in practices in the live coding scene and the chipscene, chapter four.

¹³⁹ I declined politely the offer, and my decision was respected and not questioned.

¹⁴⁰ The artists that resided at the 6B were primarily visual artists, painters, and crafters. There were not any chipmusicians living in the building.

countries, who were allowed some time to set up their gear prior to their performance. On the night, a parade of diverse chipmusic-related instruments, such as Game Boys, Commodore 64s, laptops with soundchip emulators, Ataris, and handmade electronics, reigned the workbench. In front of the stage, the audience appeared as a unified mass of more than a hundred people. Chipmusicians met and discussed with some of their social-network contacts that resided away from Paris. They introduced themselves to each other, and attempted to socialise at any moment, either by talking or by dancing, sharing this performative experience.



Image 6.1. The stage of '8-bit 'em all' at the 6B.

As the time passed, I noticed a change in the audience, with large groups of people arriving at the venue. At the beginning of the event, most attendees were chipmusicians. By 23:00, the majority of the audience were local young people whose purpose was to party. I found the same pattern in all events I attended. There was often a highly mixed audience, and the only way to distinguish someone who could have something to do with chipmusic, was by their outfit. Chipmusic fans often wore t-shirts featuring pixelated graphics, videogames, other chipmusicians' or even chipmusic festivals' merchandise.

The event was based on a standard procedure: chipmusicians firstly set up, then performed, and finally, collected their gear allowing for the next chipmusician to prepare. Once their show was over, they socialised as a member of the audience, and stayed for the next performance. Surprisingly for me, every chipmusician stayed until the end of the event, the following morning.

6.1.2 Performative characteristics of chipmusic

[Meneo blows Game Boy cartridge and slides it in his Game Boy. He switches it on and selects a chiptune.]

If people are very relaxed I don't start with a song like... [*Pushes button on Game Boy and a hard, fast beat is played*]. I try to do something more relaxed. Look, I'm going to turn the volume down and let the bass play. [*Solo bass melody is played*] OK? So you say a couple of things like: "Hey! We're here! Let's do it! Nice and easy!" And when you say that, you mix in the drums. So then you say: "Come on! Warm up those asses!" You see some of them that are still behind, that are still not moving, and you say: "Let's slow it down!" You turn the tempo down. Then you turn it up a little. And then you do like "El Zorro". [*Draws the letter "Z" on air with his finger, following the beat of his music*]. And then people are like "What the fuck?" Up, up, up...

[*Long glissando onwards, which suddenly stops. Then he gradually drops his finger whistling a descending glissando. When his finger reaches his torso, he stops, drives it to his lips, he kisses it and then presses the Game Boy button, which starts upbeat dance music*]. Meneo interview, *Europe in 8 bits*, 2013

The process of performing in '8-bit 'em all' was similar to the one in other European locations I visited, although they were some minimal differences. For example, in Rome, the chipmusic party I attended took place at the basement of a block of flats, in Dal Verme, a small bar. There were not any workshops prior to the event. Similarly, while in Greece, I attended 'Error Code', which occurred in K44, a relatively new at the time bar in central Athens, in the old gasworks neighbourhood of Gazi. K44, according to its marketing campaign, aimed at promoting 'underground' and 'alternative' music in Athens.¹⁴¹ In some

¹⁴¹ Understanding 'underground' and 'alternative' as musical concepts or categories in Greece is challenging, as they are two problematic terms. When I performed with several metal and gothic music bands in Athens, both terms were used by my colleagues to describe any kind of music which was different to the dominant, mainstream kind of popular folk music called *skyladika* (dog songs) performed at night clubs, which are also known as *bouzoukia*, named after the primary musical instrument used for *skyladika*, the bouzouki, a stringed-instrument. The musicians I was playing music with, expressed their dislike towards *skyladika*, considering this type of music as well as the lifestyle of its audience as of low quality. Such criticisms related to low-high culture are not surprising in Greek discourse; in contemporary Greek cultural history, *skyladika* were linked to the Greek Junta (1967-1974) and were considered as an expression of its aesthetic, a representation of

cases, chipmusic parties took place in clubs, as for example in Valencia and Manchester, although some clubs were significantly larger than others. For example, the Poppodium Ekko in Utrecht, which hosted ‘Eindbaas’, was a large nightclub capable of staging the largest chipmusic festival in Europe.

However, there were some differences in terms of performative practices that I observed, particularly in Germany.¹⁴² The ‘Worldtronics’ event in Berlin did not resemble the friendly atmosphere I encountered anywhere in Europe. There, formalities were kept thoroughly, and performers were asked to remain in the backstage area, where there was a private bar.¹⁴³ At a later time, I realised that the Berlin experience was different because ‘Worldtronics’ addressed a broad, electronic music-enthusiast crowd. The atmosphere in Berlin brought to my mind my informants’ experiences in the USA while attending ‘Blip festival’. Jérémie asserted that his experience at ‘Blip festival’ was not a fond memory. He felt that the divide between performers and audience did not resonate with chiptune practices, as chipmusicians were treated like rock stars (Jérémie Glafouk, 2011). For him, in the USA, people did not know how to throw a proper, fun, chiptune party, primarily because they were interested in the financial aspect of the event’s organisation. Interestingly, he was surprised when I described to him the atmosphere in the German capital, and he ensured me that Berlin used to be one of the most vibrant cities of the chipscene network (Jérémie Glafouk, 2011).

malformations of society (Οικονόμου 2005:390). The self-proclaimed “underground” music scene appeared to me as battling for authenticity based on politically left, working class ideology against the hegemony of anything related to the mainstream: politics, music, class, values etc. Comparatively, in Greek electronic music discourse, ‘underground’ and ‘alternative’ signified music that a) was composed using high technology based on complex conceptual framework and musical structures, or b) non-commercial electronic music. However, Greek electronic musicians did not make a direct reference to *skyladika* or their exclusion from such categories.

¹⁴² In chapter four I described how the situation in Germany affected my opinion on the local chipscene. As previously shown, the particular event did not make any justice to Germany’s chipscene, which is one of the strong hubs of the chipscene network (chapter four).

¹⁴³ I was not the only one to observe this difference. Javier Polo, the director of *Europe in 8 bits*, was in both at the event in Paris and Berlin. After ‘Worldtronics’ he characteristically exclaimed “That was nothing like Paris!”. He implied that the reason behind the formality of ‘Worldtronics’ was the fact that the event was filmed by the German television, ZDF. Part of the footage was featured on the show *Pixelmacher* (ZDFkultur, 2011-2013), a TV production on videogames and internet culture.

However, I made similar observations at Error Code in Athens. I was fascinated by the varied reaction of the audience: some people carefully observed chipmusicians' moves and clicks on their Game Boy consoles, others danced to the beats of 8-bit pop song covers such as the Eurythmics' "Sweet Dreams (are made of these)", whereas there were also people who engaged in discussions far from the stage while rhythmically nodding to 8-bit sounds, and others who glanced at the Amiga-produced visuals projected behind the performers. Reflecting back to this moment, the Greek audience bore no striking resemblance to the chipmusic fan base that I experienced in the chipscene primarily because they lacked any background knowledge of chipmusic and its culture.

I also found the relation between performers and audience at non chipmusic-specific events interesting. In February 2012, I attended an Anime Convention (AnimeCon) in London, hosted at a building complex in Holloway Road. AnimeCon featured diverse gaming areas, performances, such as cosplay, videogame-related shops selling comics, videogame consoles and games, as well as chipmusic performances.¹⁴⁴ AnimeCon's attendants did not resemble chiptune audiences. They did not dance; rather, they were sitting down, talking to each other, enjoying their drinks, showing their purchases. Others, were playing games on handheld consoles. Occasionally, they would look at the performers on stage. If anything, chipmusic functioned as background noise to their AnimeCon experience. Chipmusicians did not seem to be annoyed by this. When I spoke to them, they explained that this was a common reaction in gaming conventions – gamers do not necessarily like or even know about chipmusic.

¹⁴⁴ Cosplay (shorter for Costume Play) is a role playing process during which one gets dressed in a costume of a videogame, anime, or comic hero. People who cosplay meet up in gaming conventions to share their passion for this culture (Winge 2006).

In the last three examples, the audience appeared powerless rather than empowered; it adopted a passive role primarily because it was an uninformed audience: for the most part, they did not know about chipmusic or its culture. In such events, the audience refrains from attempting to socially connect with strangers, unlike chipmusic enthusiasts. This is an interesting factor to look at from the perspective of performers. Certain performers centre on their craft, ignoring the audience's reaction. They are fully-immersed in the performative process of the chipscene and embrace staged performances, such as meet-up events that empower the collectiveness and connectedness of the chipscene network. However, there are others who centre on the overall act of experiencing, and see chipmusic parties in a more flexible way, under the popular music umbrella. One of these performers is Meneo, who is originally from Guatemala, whose narrative at the beginning of this section explains part of his intentions.

Meneo is known in and out of the chipscene as the nude Game Boy musician. During his performances, in which he follows the ritual he described in his quote, he undresses on stage, expressing his liberalism and non-conformism. Although Meneo does this naked act, he is one of the chipmusicians who move chipmusic in a more mainstream, popular music context. This is also reflected in the performed music style. Meneo and other chipmusicians, such as Covox (Sweden), Henry Homesweet (England), and Sabrepulse (England) – although they adopt a less playful and more serious demeanour – often compose albums that could be characterised as electronic music, and particularly, house, electronica, or dubstep, made with chiptune sounds. The aforementioned chipmusicians often perform at more diverse music festivals, trying to get across to non chipmusic-related audiences.

Often, this tendency is articulated through performative practices. Chipmusic is not entirely performed live in the sense that rock music is.¹⁴⁵ Chipmusicians often perform in staged events solo. Thus, it is impossible to play live all four (or more) channels of their chipmusic-making platforms. For this reason, some of them are playback, while they focus on performing entirely live one channel only. As gwEm explained to me, he does two kinds of chipmusic performances: live and DJ sets. In the first instance, he follows the process previously described. In DJ sets, he compiles a playlist and centres on altering some sound effects whilst enhancing his kinaesthetic performance, which I shall explain in the following paragraphs.



Image 6.2. Roccow performing at Eindbaas 9 festival.

Chipmusicians often opt for a DJ set for their staged performances. As Toynbee has previously outlined, the DJ is seen as a ventriloquist, “who guides sounds to the dancefloor” (Toynbee 2000:98). Chiptune performance is fundamentally theatrical (image 6.2). The solo

¹⁴⁵ ‘Liveness’ is often misinterpreted in relevant chipmusic literature, where all staged chipmusic performances are inappropriately entitled ‘live’ but lack an appropriate explanation of the term (see for example, Pasdzierny 2012).

performer attempts to convey to the audience his/her passion for the music. Performers' gestures are dramatic; they clench their fists, directing them to their chest likening the musical beat to painful hits on their torso. The performer's body is kept tight, as if s/he internalises energy. During the performance, chipmusicians assume a role and play "in character", to use Frith's terms (Frith 1988:207). This is often emphasised by the selection of costumes, masks, as well as other ornaments and garments.¹⁴⁶ D'Errico has commented that:

[...] chiptune performance is often centred aurally and visually on the Game Boy, and in this way the kinaesthetic involvement of the performer connotes an experience that is quite literally akin to playing a video game. (D'Errico 2012)

In addition to this, Pasdzierny has asserted that videogame nostalgia is a theme commonly used in chipmusic performances, aiming at evoking or creating "intense and highly-emotional collective childhood and youth memories of several generations strongly connected to computer games" (Pasdzierny 2012:182). Although references to videogames and the gaming experience are prominently featured in staged performances, if examined closer, one will realise that videogame nostalgia is not so intensely experienced. Nostalgia is only one aspect of chipmusic, which enhances the collective experience of and the need to feel connected to the chipscene network.

This need for belonging to the chipscene network appears so strong that it by and large overrides any gender discrimination within the chipscene, as one often finds, this is the reason why there are not any participatory discrepancies between male, female, and transsexual performers, as one commonly finds in popular music (Frith 1988:213). Musical

¹⁴⁶ Chipmusicians' outfits often aim at being comical. For example, one of the Cheat Code members from France wears a computer monitor as a helmet, Goto80 has appeared on Swedish television with lettuce all over his face and body, Superpowerless in England usually wears a wolf onesie, and Desert Planet from Finland become chiptune astronauts with green motorcycle helmets. Otherwise, as previously described in this chapter, chipmusicians wear T-shirts with pixelated visuals and other relevant chipmusic graphics.

performance is centred on the shared passion for music and for this reason, gender is often bypassed. As previously explained in this thesis, chipmusicians tend towards expressing gender neutrality. This is furthermore observed and explained through chipmusic performance. When a woman, man, or transsexual performs, the audience's reaction is the same – and if anyone does otherwise, they are immediately publicly shamed and blocked or thrown out of the network. This is the kind of sociocultural change chipmusicians enact through performance and the particular technology used. The aim is not to perform one's body and identity in terms of power play, but to get across to the audience as equal, sustaining thus the connectedness of the chipscene network. Thus, gender neutrality reveals a different kind of performativity: that of the collective, well-connected chipmusic ideology.

6.1.3 Visuals in chipmusic performance

In chipmusic discourse, visuals are not a method to evaluate chipmusic creativity, as one finds in the demoscene. Rather, visuals function as an accompaniment to chipmusic in staged performances. Usually, visuals are projected behind performers, constructing a visual layer, a canvas on which bodily performance takes place (see below, image 6.3).¹⁴⁷

¹⁴⁷ Pasdzierny also highlighted that the visual output of chipmusic is visually represented by projecting the tracker surface (Pasdzierny 2012:178).

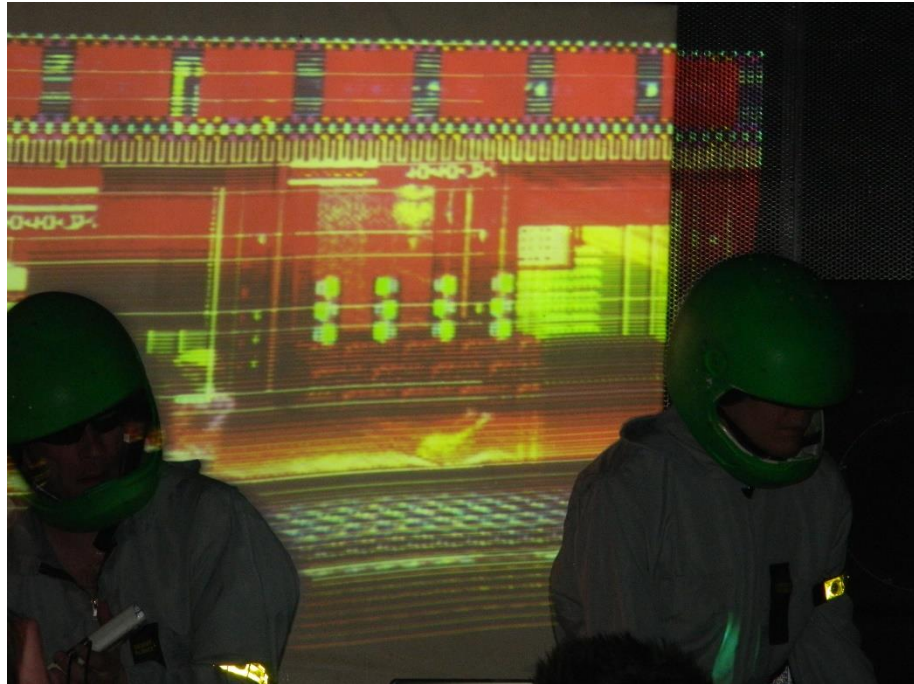


Image 6.3. Visuals projected behind Desert Planet during their staged performance at Eindbaas 9.

There is some diversity regarding the visuals' aesthetic characteristics, which is attributed to the visualists' ideology. As Paris Triantafeles, a visualist (VJ) based in New York, illustrated:

Like all things... how visuals connect will probably depend on who you ask. I think I would categorise something like this:

1. Those who make viz [*visuals*] that are somewhat game related – the obvious connection being video games and the music using game systems.
2. Those who use vintage systems for viz and who are inspired by the demoscene.
3. Those who come from the circuit-bending or glitch angle. Either by circuit-bending old systems or using modern ones but with a glitch aesthetic.
4. Others. (Paris Triantafeles e-mail communication, 2012)

In his narrative, Paris highlighted the influence of demos and videogame aesthetics as sources of inspiration for chipmusic visualists. Paris also stressed the impact of circuit-bending as method for the making of chipmusic visuals, and particularly the influence of glitching techniques. Glitch in the chipscene is expressed as visual or audio output resulting from malfunctions of hardware or software that make the platform behave abnormally.¹⁴⁸ In

¹⁴⁸ For example, in hardware, a glitch can be a result of short-circuits, and in software, bugs in code.

chipmusic discourse, glitch is interpreted as an intended “noise”, a “not yet defined break from a procedural flow” (Menkman 2011:27).¹⁴⁹ In a sense, glitch and other forms of technological errors are often co-opted in chipmusic, becoming a creative element for music composition. This is in accordance with the general ideology from which the chipscene stems.

The fourth category Paris mentioned, was simply entitled as “other”. As he further explained:

I think I fall into (4). Everything I do tends to be abstract. I rarely use anything recognisable. My work is pretty mathematical in background. I often listen to an artist’s work and get certain feelings – or will ask them – what feelings they want to convey in their music. Then I go about trying to do the same – but abstractly in my own interpretation. (Paris Triantafeles e-mail communication, 2012)

Paris suggested that the latter category comprises any method for visual-making, excluding the three preceding ones. He characterised his visuals as “abstract”. This resonates with similar narratives in chipmusic. For example, as illustrated in chapter five, chipmusicians often consign to unclassified categories when it comes to thinking in terms of musical genre. Among chipmusic visualists, the same discursive pattern is observed. I often found visualists declaring they create ‘abstract’ visuals, asserting that what they do does not remind one of neither videogame elements nor demo characteristics. Moreover, visualists separate their work from others by comparison to and negation of chipmusic stereotypes.¹⁵⁰ “I don’t centre on videogame narrative”, “I’m not interested in glitch and pixel-based visuals”, and “Unlike other visualists, I make visuals in real-time”, were expressions

¹⁴⁹ For an extensive analysis of glitch in digital culture see Krapp 2011. Glitch in the context of the demoscene and chipmusic, is analysed in Menkman 2010 and 2011 respectively.

¹⁵⁰ This trope does not tell us anything about visualists’ internal competition. During fieldwork, I found that visualists’ presence was not so prominent. While doing participant observation with certain visualists, my impression was that they were detached from the chipscene in the sense that they did not create visuals for chipmusic events only, but worked primarily as visual artists who are inspired by particular chipmusic-related methods.

visualists often used (for example, Raquel Meyers, VJ Visualoop, and Paris Triantafeles among others) when clarifying their creative ideology.

In certain cases, chipmusicians design their own visuals but more commonly, independent visualists create visuals for staged chipmusic performances. There may be an initial contact prior to the event, as Paris explained, when visualists have the opportunity to inquire from chipmusicians about the meaning of their chiptunes. Paris centres on the feelings chipmusicians want to express through their music and attempts to construct visuals in a fashion that depicts these feelings. This is exactly the function of visuals in chipmusic: to enhance the experience of chipmusic in staged performances.

6.1.4 Street performances

In the highly internationalised and globalised musical environment of the chipscene, the ‘cross-cultural’ meanings in question have to do with the networked aspect of chipmusic and the fact that the audience at performances is always assumed to be in multiple locations. Here, I focus on performativity as simultaneously engaging with, and articulating the relationship between different spaces, at different scalar relationships in local and global levels. I focus on street performances that are primarily local performances that address local people. However, these street performances are also a global phenomenon in the chipscene network. In this section I aim to present certain cases of street performances in regions in which they are popular (South East Asia, America, and Europe). My aim is to construe street performances as another layer of the networked nature of the chipscene, whilst outlining the differences of experiences globally.

On a Saturday night in December 2009, few Indonesian chipmusicians gathered at Dr. Murdjani square in Banjarbaru, South Borneo, to perform. Their gear consisted of Game Boy consoles and mini speakers used to amplify sound, which were set up on the pavement (image 6.4). One of the performers was *Batu berguling* (“Rolling Stone”), whose real name is Nikko Perdana Putra. Nikko played his chiptunes on his Game Boy, using *Nanoloop* and *LSDJ* cartridges. As he explained, in Indonesia, street performances are popular. Although street performances are not ubiquitous in the chipscene network, chipmusicians around the world gradually developed an interest in them.¹⁵¹ This is one of the effects of information transmission in social networks: chipmusicians in one country organise a street performance, they film it, and release the video on the internet. Chipmusicians across the chipscene network watch the video and decide to put together their own street performance.



Image 6.4 Nikko performing at Dr. Murdjani square. Copyright: Nikko P. Putra.

¹⁵¹ This is rather recent, since 2010.

My aim in this section is to demonstrate that street performances have multiple cross-cultural meanings and interpretations.¹⁵² In a sense, performing in public spaces aims at recruiting fans. From a different perspective, street performances are a way to perform cultural diversity in the chipscene. My purpose here is to show how chipmusicians negotiate sociocultural change through street performances.

During one of our synchronous e-mail conversations, I asked Nikko about his performance in Banjarbaru:

MP: Tell me about the place you performed.

NPP: Especially on Saturday nights, this square [Dr. Murdjani] is always crowded. People always enjoy the night, they eat at some food fest.

If I must choose between stage live or street music, I choose street music. It is different taste, various people could enjoy our music, not only certain music lovers, and that's the point. Street performances seem like a habit, or I could say a profession in Indonesia called 'ngamen'. But we are doing it without getting paid. We like to do it because we attract the interest of the crowd we want. Ngamen is a poor profession. But in some ways there are many artful ngamen. I think they are also found in other countries.

MP: Are people trying to give you money when you perform?

NPP: No they don't...

MP: Do they like it?

NPP: Some people looked like they didn't understand what we did... but some teens rounded us, and this is our target group. (Nikko P. Putra synchronous e-mail conversation, 2013)

Nikko comes from a generation of young musicians in Indonesia who produce music independently, "in their own terms" as Luvaas has put it (Luvaas 2009:247). Luvaas has described how *lokal* (local) Indonesian musicians attempt to deterritorialise themselves of their native land (ibid 251). As Wallach has illustrated, young musicians use a variety of methods to get across to their audience, such as fanzines (Wallach 2003). By making popular music, musicians articulate their discontent to the political situation in Indonesia while attempting to reach the global market (Luvaas 2009:251). As Luvaas has further elaborated:

¹⁵² For studies on street music performances see Harding 1975, Prato 1984, Tanenbaum 1995, and Frith 2002.

The internet supplied a ready means for thousands of young people, at least those middle-class college and high school kids with enough time and money to regularly access it, to become hip to international aesthetics in real time. (Luvaas 2009:252)

Performative chipmusic practices in Indonesia suggest that chipmusicians embrace their locality by co-opting local performing practices, such as *ngamen*. They also attempt to personalise it by incorporating the international aesthetics of chipmusic sound.¹⁵³ As outlined in chapter four, people in the Indonesian music industry saw the local chipscene as a means of creating a niche which could be promoted transnationally. This was one viewpoint. Popular chipmusic bands such as Sunday Carousel were not restricted to perform at mainstream festivals only. They also performed in street events. In Indonesian chipmusic discourse, street performances are significant to reach for the appropriate audience, namely, young people.

From the perspective of Malay chipmusicians, street performances are difficult to materialise for political reasons intertwined with legal procedures. As my informant Aimen explained:

It [street performance] is frowned upon. And sometimes it is illegal to display or gather or make a scene without a licence. To get the licence you would need to suck up the authorities. This was made prominent as our country is a multiracial country and the reasoning behind this, is to stray away from mobbing (look at the case of racial mobbing on 13 May 1969). So the government is taking “precautions”. And street busking was considered as a drug addict favourite in past times. Due to the 1970s and 1980s rock invasion. (Aimen synchronous e-mail conversation, 2013)

It appears that Malaysia follows the lead of Indonesia in terms of how discontent to political affairs is expressed.¹⁵⁴ Aimen expressed his fondness for Indonesia when I suggested that street performances are popular there (“Anything goes in Indonesia, as I see it. I love that country!”).

¹⁵³ Bodden defines *ngamen* as “itinerant street singer” (Bodden 2005:15). In addition, Cohen refers to *ngamen* as “busking” (Cohen 2013:134).

¹⁵⁴ For an insight in politics and popular music in Southeast Asia, see Lockard 1998.

Legal issues are also prominent in other countries, for example, Colombia. In 2010, Rockman, a chipmusician from Bogotá, posted a video on YouTube, marked as “illegal” street performance. Contrary to Indonesia and Malaysia, street performances in Colombia are usually powered by electricity.¹⁵⁵ Rockman clarified that:

I tagged the video as illegal because I didn’t have any kind of permit from the government or police (which you have to) in order to perform in the street and use amplified speakers connected illegally from the power supply in the streets. (Rockman Navarro interview, 2013)

However, in the USA and England, chipmusic street performances are commonly found, particularly in urban areas. Chipmusic “busking”, as it is called in Anglophone countries, can also be seen as a kind of mobile music performance. As Gopinath and Stanyek illustrate,

If mobile music performance has a core repertoire, the ‘walking’ piece would be one essential genre – one that ironically marries the fundamental motility of the human species with the latest trends in mobile, digital technologies. (Gopinath and Stanyek 2014:11)

Music performance transforms spaces (Stokes 1994:4) and chipmusic street performances highlight this point. During the performance, people from diverse social backgrounds become a members of the audience bypassing their dissimilarities. Secondly, the dissemination of videos of street performances on the internet enables a constructive dialogue across the chipscene network that ultimately inspires new performative practices. Thus, chipmusicians constantly develop new ways to negotiate meanings by using the communication channels of the chipscene network.

¹⁵⁵ See for example, the video ‘Chiptune Street performance – Bogota Colombia 2013’, published on YouTube on 10 June 2014 <<https://www.youtube.com/watch?v=9jVUfHDgKk8>>, accessed 22/10/14.

6.2 Screened chipmusic performances

The first section of this chapter aimed at presenting staged chipmusic performances and the ways that the chipscene network enables chipmusicians to enhance their connectedness through musical performance. Here, I examine screened performances in chipmusic. I employ the term “screened” inspired by Turkle’s work, *Life on the Screen: Identity in the Age of the Internet* (1995), implying the multifaceted aspects of the term. Firstly, screens, whether in the form of a television or a computer screen, are utilised for watching performances. Secondly, since watching is never passive, screens can be seen as mirrors that represent a reality; the digital one. In the digital world one can metaphorically walk through their screen, get connected to other people, and participate digitally in events that are streamed online.

In this section I see music videos as types of networked and recorded performances rather than as a product. I am mostly interested in the experience of listening – and watching – as a performative practice. Chipmusic videos are disseminated in diverse video hosting websites on the internet, such as YouTube and Vimeo. Chipmusicians share links of videos across the chipscene network, through online chipmusic communities or social networking sites. Music videos as performances negotiate meanings related to technology and culture in its broader sense. For example, one often finds chipmusic videos replete with videogame elements. Superpowerless in his video “Wasted my time” (2009) demonstrates a day in his life, which is spent (or, wasted, according to him) playing videogames.¹⁵⁶ We see him in character, as a videogame hero, trying to avoid enemies while earning points by conducting diverse tasks, such as go carting, passing obstacles in a building, and skate boarding. The

¹⁵⁶ Superpowerless began his career as a chipmusician but in the process, he turned towards becoming a YouTube persona instead, creating videos for amusement purposes. Using his alter ego, Oliver Age 24, he produces art, commentary, and other types of videos with chipmusic soundtrack.

pixelated graphics and story primarily resonate with the aesthetics and narrative of the videogame Super Mario Bros.

Chipmusicians who address uninformed audiences have a preference towards video production.¹⁵⁷ Moreover, music videos often become a means of performing one's identity, mixing diverse cultural elements. One such case is Omodaka from Japan. His chiptune "Plum song" (2009) juxtaposes traditional Japanese and popular music characteristics.¹⁵⁸ The lyrics and vocal melody are borrowed from the Japanese folk song *Ume Wa Saitaka* (梅は咲いたか), which is originally a song from the Edo period (1603-1868) in the genre *Jiuta* in the style of *Hauta* (lyrical song).¹⁵⁹ Concomitantly, the lyrical song is mixed with samples featuring the harmonic structure and some melodies from DeBarge's "I like it" (1982), structured upon a *tresillo*, a duple-pulse rhythmic cell.¹⁶⁰

The lyrics describe a bittersweet, unrequited love story between a geisha and one of her customers (see appendix). The title is a metaphor to describe the affair, as in Japanese culture plums represent sadness or fragile emotion (Kyoko M. interview, 2013). The video features diverse Japanese figures, such as geishas, *maneki-neko* (beckoning cat, a symbol of good fortune), and *geta* (platform shoes). Omodaka retains the expression of Japaneseness in his staged performances, where he wears a traditional *miko* costume enhanced with a white porcelain mask. In a sense, his act is a means of performing his representation of Japaneseness in and out of the chipscene, negotiating diverse meanings each time. From the

¹⁵⁷ See for example, Patric Catani's work.

¹⁵⁸ Certain chipmusicians use national elements in their music. For example, Obasilakis and Larisaiko Ati, in their chiptune entitled "*Paradosi*" (tradition) (2013), they mimic cadential elements, melodic forms that emphasise modal construction, and circular breathing techniques of the Greek folk clarinet. In addition, in terms of performative elements, Ultrasyd often samples few seconds of the French national hymn in the beginning of his performance, and uses linguistic clichés in his chiptunes such as "Un croissant, s'il vous plaît".

¹⁵⁹ For the lyrics and translation, see appendix in this thesis.

¹⁶⁰ *Tresillo* is found in diverse musical cultures, for example, in Reggaeton, in Latin American pop music, and also in African and Oriental cultures. Its pattern is similar to the Arabic *maqsum*.

perspective of chipmusic audiences, he is seen as a Japanese chipmusician. Popular music audiences recognise his reference to videogame sounds. Omodaka's performances empower the interconnection of diverse networks across cultures and musical traditions.

Music videos offer a dynamic means of connecting with the chipscene network through textual communication. Users often exchange their viewpoints in the comments' section underneath uploaded videos. This form of asynchronous communication becomes a means of negotiating chipmusic meaning to uninformed audiences who happen to come across screened performances.

A second example of screened chipmusic performances are online events. During fieldwork I attended digitally several chipmusic events that occurred in physical places but were also streamed online. These performances should be seen as hybrid as they are simultaneously staged and screened. As I will show here, screened performances suggest different communication methods between audience and performers. To clarify this argument, I will centre on a screened performance I attended towards the end of my fieldwork.

Clipstream is a monthly web show produced in the USA, which features chipmusic. The producers organise online performances, in which performers connect to the server and broadcast their performance, which is transmitted for online viewers. Viewers watch the streamed performance in real time, and can also use a chat box to communicate with each other. In December 2013, I attended 'Clipstream XII and the Deep Dish of Doom', an event that lasted eleven hours in total, during which twenty two acts performed.

The alternation of performers was similar to that during staged events. Prior to all performances, some time was allowed to set up: to connect on the server, test the connection, and do a sound check. Performers broadcast from diverse geographical locations, despite the time difference, and followed the pre-arranged schedule. On the day, I observed that several chipmusicians across my network were watching the show. For example, Bacalao posted a Facebook status commenting that he listened to live music instead of working (“écoute des lives plutôt que de bosser le sien...” 7/12/13). Most acts performed from their houses. This was not surprising, as such an event required a stable and fast internet connection. Performative practices were diverse. Certain chipmusicians, such as Komissar, dressed up, others like Ultrasyd created a rich visual experience by using special lights, while others, as for example, The One Electronic, were informal: there was one chipmusician performing, while someone lay on the sofa behind him.

During performances, several technical issues occurred. Some were attributed to the limitations of internet technology that was not powerful enough to transmit audio, video, and live textual information simultaneously. The video stream suddenly paused, and chat comments were delayed. The predicament of limited technology lifted the stress of embarrassment, which is a common fear of performers, as Frith has underlined (Frith 1988:215). Although hundreds of people watched the show, at times of technological errors, performers did not seem distressed at all.

One of the most significant aspects of this online event was the interaction between performers and audience. Contrary to staged performances, where one usually observes some non-verbal types of communication, here the chat feature enabled textual communication. During the performance, viewers kept a public dialogue, in which performers also participated. Viewers addressed questions and comments to the performer,

who in his/her turn, responded. Multitasking is possible, due to the fact that chipmusicians use pre-recorded sequences for their performance. Screened events, then, introduce new methods of getting across to the audience. This has impactful ramifications on the way popular music is performed, communicated, and understood.

Summary

Chapter six examined networked performances in chipmusic as mediated on stage or on screen. I emphasised the significance of performative practices as a way to enhance the connectedness of the chipscene network. Throughout the chapter, I stressed how aspects of empathic emotionality sustain intimacy in the chipscene network, based on visual-performative (Leppert 1993) elements of music. I discussed kinaesthesia, dress, visuals, and performing practices in diverse settings, while distinguishing how chipmusic performance is similar and different to traditional popular music performances. Furthermore, I outlined the significance of performance in depth, demonstrating that a chiptune event is not simply “an interesting flow of 8-bit sounds and images that requires the co-presence of the artist, the technology and the audience” (Márquez 2012:71). Rather, I construed chipmusic performances as public expressions in which chipmusicians negotiate social and cultural change.

Chapter 7. Copyright: challenging creativity in chipmusic

In my search for the cultural understanding of the creative process, I am interested in how aspects related to creativity, such as copyright, may influence creative practices in the chipscene. Copyright deals in rights to intellectual property in a capitalist marketplace. It deals with the idea of a single author, the source of the ‘creativity’. In a creative marketplace increasingly involving non-Europeans, and various kinds of ‘traditional’ practices, it runs into problems. In the work of various avant-gardes and experimental communities, where creativity is understood in terms antagonistic to romanticism (the individual creator) and the capitalist market place, various kinds of networked, group, or communal practice also have difficulties negotiating existing copyright practices. In this chapter I will look at what happens when copyright discourse/practice and chipscene discourse/practice meet. I explore the complex ramifications of this meeting at various different legal, technological and creative levels. I argue that these encounters with copyright issues in the chipscene can be particularly enlightening elsewhere considering that chipmusic is a kind of electronic music circulated digitally.

Chapter seven examines the multifaceted issue of copyright in chipmusic practices. Currently, music and copyright law are linked. Creativity and copyright are mutually sustaining and defining concepts in the capitalist marketplace. Creativity ‘is’ what can be copyrighted. Copyright ‘protects’ creativity. Copyright law is used to provide legal rights in music, to the writer of the music, the performer of the music, and the owner of the sound recording. In this chapter I outline the problematic aspects of copyright for a twenty-first century networked culture that not only encourages cross-cultural creativity, thus transcending geographical boundaries, but also uses the internet as a means of dissemination for its cultural product. Here, I extract information on practices related to copyright based

on previous cases, in and out of courts. My aim is to analyse the problems related to copyrights that chipmusicians experience and additionally, argue that copyrights in their present form are not suitable for protecting chipmusicians or, for what it is worth, other creators whose practices are enabled by the internet. In order to structure my argument in terms of the law, I attempt to bridge ethnographic perspectives on chipmusic practices with legal discourses.

One may find that the ethnographic voice is less clear in this chapter and that legal language is rather apparent. I find that purely ethnographic accounts of legal issues often address anthropological circles only and that rarely such discussions penetrate in academic law. My aim is to speak to a wider audience including ethnomusicologists, anthropologists and lawyers, by writing an ethnographically-driven discussion regarding networked creativity in chipmusic.

Intellectual property rights and more particularly, copyright, relate to the notion of property and ownership, as developed by European and American thought since the Renaissance (Leach 2007:101). Locke stressed the importance of land and property, primarily for reasons of human sustainability: “land had the potential to be made productive through labour” (Leach 2007:104). The key idea that Locke conveys is that the investment of work in land was said to generate some sort of proprietorial interest. This principle translates well when making the conceptual analogy with intellectual property, which regards to works as property of their authors.

Copyright falls under the umbrella of intellectual property rights. The origin of copyright was about protecting the written word and rights pertaining to that. The first copyright statute in Anglo-American jurisprudence was the British Statute of Anne (1710),

which applied only to the copying of books. In 1886, the first international agreement on copyright was established in Berne, Switzerland. The Berne convention, as it was named, was signed by nine governments that agreed on a set of protocols for literary and musical works.¹⁶¹ Currently, 186 countries embrace the Berne convention, which is managed by the World Intellectual Property Organisation (WIPO), a specialised agency of the United Nations. In 1996, the World Intellectual Property Organisation Copyright Treaty was incorporated to address issues related to the internet and information technology.¹⁶²

Vaver in his work *Intellectual Property Law: Copyrights, Patents, Trademark* (1997) has given an insightful overview of the law and the practical considerations of copyright. As previously explained, copyright law provides legal rights in music, to composers, performers, and owners of sound recordings. On one level, copyright is about the right to copy; on another, it is about a bundle of economic rights and of moral rights which the owner of a copyright has. Licensing copyright enables another to use a work by copying, or performing, for the price of the royalty. The use of copyrighted material without permission infringes certain rights granted to the copyright owner, such as rights related to reproduction, copying, and performing. This act is defined as copyright infringement. It is worth noting that copyright protects fixed works, or, as Leach put it, authorship of material expressions of ideas (Leach 2007:107). Copyrights were initially generated for practical reasons, as a balance between public and private interests associated with creative practices, including economic interests. Copyright laws tend to have a hierarchy according to both economic and moral rights.

¹⁶¹ Lyrics, code, and works of literature are examples of literary works.

¹⁶² In addition, the TRIPS agreement (Trade-Related Aspects of Intellectual Property Rights), introduced intellectual property law into the international trading system. It was administered by the World Trade Organisation (WTO) and came into effect in 1995 (Reichman 2000).

Where a song is part of a culture and written many years ago, a new recording of the song or a new arrangement of the music, or even a new performance can still give rise to some legal rights protected by copyright. Copyright arises in a country with a law that protects copyright and in those countries which have agreed to respect the rights of other countries' copyright laws. Yet, it does not arise where no law applies. It can arise courtesy of the internet in more than one place at the same time – depending upon the laws and how those have been interpreted in the jurisdictions in question.

In the scholarly work of ethnomusicologists, anthropologists, and popular music researchers, copyright is construed as a highly problematic concept, for practical and theoretical reasons. Toynbee has characterised the relation of copyright and authorship as “a marriage of convenience” (Toynbee 2001:3) addressing the initial aim of copyrights. Issues related to copyright law have been extensively analysed by Seeger in the field of ethnomusicology. As he has clarified, copyright law varies from country to country and protects the work of individual compositions (and small groups) excluding oral traditions or folk music (Seeger 1996:90).¹⁶³ Seeger overviewed practical and ethical dilemmas: how ethnomusicologists can protect non-copyrighted recordings collected during fieldwork by anyone interested to take advantage of them – including ethnomusicologists themselves.

More specifically, in popular music, copyrights present a challenge to creativity in relation to two areas: authorship and sampling. Firstly, popular songs are often credited to several composers (Brackett 1995:2, Toynbee 2001:3) which is problematic in terms of acknowledging authorship, particularly in the case of songs performed by singers who did not compose them.¹⁶⁴ In the second instance, the practice of sampling, the partial reuse and

¹⁶³ Seeger's underlying point in relation to oral traditions or folk music, was the difficulty of multiple authorship in such categories, which can at times have the effect of excluding them.

¹⁶⁴ See for example, *Hadley and Others v. Kemp* (the Spandau Ballet case) [1999] EMLR 589 and *Joyce v Morrissey* [1999] EMLR 233. In both cases, the primary argument was about which group members had

re-appropriation of pre-existing sound recordings in new compositions presents direct issues to copyright and indirectly to the concept of creativity. Sampling almost always signals copyright infringement. The market has responded to sampling issues with the advent of sample clearance houses, namely companies which conduct research on a specific musical piece that uses samples, and negotiates with copyright owners in order to avoid litigation. In more favourable terms, sampling is a “creative exploitation” (Frith 1993:13) of (some) previous material in a way that could not be thought of by the original creator. On the one hand, then, sampling as a creative form of “transformative appropriation” (Demers 2006:4) is central to popular music practices, but on the other, it has the potential to become a threat for creators. Furthermore, as Coombe has stressed, the music industry threatens creativity, as its social agents regard musical culture as a form of intellectual commodity (Coombe 1998:16) that should be exploited to generate profit.

Unlike other examples in popular music, in chipmusic there is clarity regarding the creator of a chiptune, as it is primarily composed by one person. In these terms, there is no conflict regarding authorship. Two agreements of the Berne convention are fundamental to underpinning issues of copyright in chipmusic. Firstly, copyright does not require any registration, it is automatic once a work of art has been created in its material form (Lessig 2002:106). Secondly, the Berne convention recognises national copyright law, which applies to any works published or performed in the specific nation, regardless of where they were created (Article 2, Section 7). In this chapter I will demonstrate how copyright, sampling, and appropriation have impacted chipmusic practices and will make practical suggestions that ultimately can be applied to protect other cases of networked creativity.

contributed what to the making of Spandau Ballet’s and the Smiths’ music, as well as how the group’s earnings should be distributed (Greenfield and Osborn 2004:100).

7.1 “Acidjazzed Evening”: copyright infringement or exploitation?

In 2000, Finnish chipmusician Janne Suni composed a chiptune entitled “Acidjazzed Evening” on Amiga tracker, which was released as a .mod file. Two years later in Norway, Glenn Rune Gallefoss created a different version of “Acidjazzed Evening” on Commodore 64 in the form of a .sid file. Gallefoss’ version was published on *Vandalism News* diskmag (August 2002, issue 39) in Australia, and with his permission, “Acidjazzed Evening” was made available for downloading and copying. In December 2002, the chiptune was also posted on the High Voltage SID Collection website, making it available to broader chiptune audiences.

In 2007, Gallefoss transferred “all transferrable rights” of “Acidjazzed Evening” to Kernal Records Oy. First, an action for infringement was filed in Finland, in the District Court of Helsinki against Universal Music Ltd against “Do It”. Chris Abbott, a composer of videogame and chiptune music who had also testified against the legal case of David Whittaker versus Kernkraft400 for the infringement of “Lazy Jones” in their song “Zombie Nation”, was called as an expert to give evidence about the case. Abbott argued that Timbaland plagiarised “Acidjazzed evening” in its majority and “any claims that he could have independently recreated a SID piece without using a SID is laughable” (Abbott, pers. communication 2013). Abbott explained to me that insufficient weight was given to this argument. The case was dismissed by the Finnish court in January 2009 after ruling in only one aspect of the three claims (sampling, performance rights, producer rights).

In June 2009 the case was filed in Florida, USA, with Kernal Records Oy suing Timbaland for copyright infringement of the aforementioned chiptune in his composition

“Do It” (2006).¹⁶⁵ The plaintiff alleged that the sound recording and musical arrangement were copied to Timbaland’s composition. Unofficially, Timbaland responded to plagiarism accusations that “sampling is not stealing”, claiming he sampled sounds from a videogame. Although the case opened in 2007, it was not until 2011 that it was settled.

The original composition by Suni is an instrumental tracked chiptune. The .mod file reveals information on tempo (127 bpm) but not on the tonality (B flat minor).¹⁶⁶ In the tracked notation, one will find accidentals that can determine tonality. “Acidjazzed Evening” consists of four channels: bass line, arpeggios, main melody, and a dual track that operates as assisting melody or drum beat at different parts of the piece. Structurally there are four variable patterns. In terms of content, there are several repetitions, “hooks” and a verse-chorus-verse structure.¹⁶⁷

The piece begins with the first pattern, A, which functions mainly as a verse. It is followed by B, which represents the chorus; the bass melody is worked in an upward direction creating a memorable hook. The structure of the piece continues with a repetition of a varied A and B, followed by a C solo section which is based on a different theme on the same tonality and harmonic structure as A and B. The piece ends with a finale pattern, D, which is entirely based on the harmonic structure of A with a coda.

Timbaland’s “Do It” is a song that uses several channels which at times are not distinguishable. There is a clear bass line, arpeggios, vocal tracks, drum beat and several synthesizers. The song is composed on the same tonality as “Acidjazzed Evening” (B flat minor). In terms of structure, three patterns are alternated: patterns A (verse) and B (chorus)

¹⁶⁵ KERNAL RECORDS OY, Plaintiff, v. TIMOTHY Z. MOSLEY p/k/a TIMBALAND; et al., Defendants. Case No. 09-21597-CIV-TORRES. United States District Court, S.D. Florida. June 7, 2011.

¹⁶⁶ See appendix for the transcription of “Acidjazzed evening”.

¹⁶⁷ A “hook” is a catchy short melody commonly found in popular music.

are repeated throughout the song, with an additional bridge C that is a minimal version of A (only vocals and bass lines are used). The overall orchestration varies and the song ends with a fade-out of repeated chorus.

In listening closely and analysing the two pieces, one observes that a) both pieces share the same tonality, b) the harmonic structure of “Do It” is based on pattern A from “Acidjazzed Evening” (see transcript), c) 8bit arpeggios in “Do It” are copied from “Acidjazzed Evening” without alterations, d) the third channel which is the main melody from pattern A in “Acidjazzed Evening” is also copied in the verse of “Do It”, and e) rhythmic patterns are the same in both pieces. The harmonic structure in pattern A of “Acidjazzed Evening” is I-III-VI, I-VII-VI, I-III-VI, IV-V-VI which returns to the tonic once repeated. In “Do it”, the harmony is the same in the verses with an alteration at the chorus: I-III-VI, IV-V-VI, copying and repeating only the second half of pattern A. “Do It” consists mainly of pattern A from “Acidjazzed Evening” which is sampled throughout the song.

One of the witnesses in court was Chris Abbott, who was called to provide a musicological analysis of both musical pieces based on his expertise as a composer and programmer on Commodore 64. Abbott presented a ten page analysis, concluding that Timbaland’s “‘Do It’ is an uninspired copy of ‘Acidjazzed Evening’” and that “[e]very part of “Do It” owes its existence to the musical ideas and original Commodore 64 performance [of “Acidjazzed Evening”]” (Abbott 2007:10). As he explained, by looking at the samples closely, an expert can understand that whoever copied the tracked composition lacked any appropriate programming skills that are important to exploit the capacities of the .sid file (as for example, modulation filters) (ibid 3).

This resonates with Born's observation in relation to skills and code theft. The allegedly used information may not necessarily be embodied in the code itself, but rather, in the knowledge "embodied in persons" (Born 1996:103, 110) and the ways it is re-appropriated in new creations. In that respect, code can be copied and altered completely, if one possesses the appropriate skills. The end result may be entirely unrecognisable and thus, an allegation of copyright infringement can be difficult to prove. In the case of "Acidjazzed Evening"'s appropriation for "Do it", the lack of programming skills clearly demonstrates that the sound recording, and particularly, its introduction, has been copied as such, without being changed.

What also occurs in "Acidjazzed Evening" is the result of "abduction", a term coined by Peirce and borrowed by Eco to describe "the problem of what happens when an attempt is made to read symbolic material without the possession of relevant code competence" (Eco 1976 in Toynbee 2001:14-15).¹⁶⁸ Toynbee clarified that, in that situation, code readers have to develop new rules that are based as much on their own familiar codes as on experimentation, "through trial and error", creating thus a new code (ibid). The producers of "Do It" lacked competence in manipulating the Commodore 64 sound composition characteristics, and for this reason they followed a familiar process. They recorded the introduction of "Acidjazzed Evening" and ran it through bass filtering, whilst introducing a smooth bass instrument playing a simplified three-note bass pattern (Abbott 2007:7).

Although Abbott's analysis was insightful, it was never examined by the court. On March 31, 2011 the Magistrate Judge closed the case on the basis that Plaintiff should have registered the copyright claim of "Acidjazzed Evening" prior to suing because it was primarily published on the internet. At first, this seems to be against the Berne convention,

¹⁶⁸ Peirce defined abduction as "the process of forming explanatory hypotheses. It is the only logical operation which introduces any new idea" (CP 5.172).

according to which one is not required to register a copyright as it subsists automatically once a work has been fixed in material form. However, the Bern convention also dictates that national copyright laws prevail in cases of copyright infringement. The US copyright law (§411, a) states:

Except for an action brought for a violation of the rights of the author under section 106 A (a), and subject to the provisions of subsection (b), no civil action for infringement of the copyright in any United States work shall be instituted until preregistration or registration of the copyright claim has been made in accordance with this title. (USC §411, a, 2011)

In summary, the Judge's decision was that:

The underpinnings of the ruling were our conclusions that Plaintiff's SID file version of "Acidjazzed Evening" ("AJE") had first been published on the internet and that that act constituted simultaneous publication in the United States and other nations around the world having internet service under the Copyright Act of 1976, 17 U.S.C. § 501, et seq. We concluded that Plaintiff's work met the definition of a "United States work" under 17 U.S.C. § 101(1)(C) and that, pursuant to 17 U.S.C. § 411(a), Plaintiff was required to register AJE prior to suing for we found that Plaintiff had not satisfied a statutory condition precedent to initiating this infringement lawsuit. Accordingly, since Plaintiff could not initiate or maintain this action, we granted summary judgment for Defendants.¹⁶⁹

This decision echoes Coombe's assertion that social agents in the music industry often manipulate and exploit copyright law in order to benefit from its functions. Had the case been examined though, I wonder to what extent the defendants could push the limitations of copyright law. For example, in a sense, Timbaland transformed "Acidjazzed Evening" into "Do It", bringing it to a consumer audience that was not previously thought of¹⁷⁰. Concomitantly, Abbott calculated that "Do It" plagiarised 80% of the content of "Acidjazzed Evening". "Do It" could not even be seen under the umbrella of sampling, and ultimately examined as 'fair use'.¹⁷¹ To a certain extent, this case presents some of the

¹⁶⁹ "Memorandum opinion and final order on defendant's motion for summary judgment and plaintiff's motion to amend", Edwin G. Torres, Magistrate Judge. Document available on <http://scholar.google.com/scholar_case?case=735744437311116218> accessed 24/10/14.

¹⁷⁰ See also the notorious Dutch case on the transformation of Carl Orff's "Carmina Burana" into a dance floor hit (Frith 1993:13).

¹⁷¹ Fair use is a doctrine in US copyright law that allows limited use of copyrighted works without necessitating the acquisition of rights to reproduce from the rights holders. However, as I will demonstrate further in this chapter, it is a highly problematic term as it is difficult to define the allowed quantity of copyrighted material.

anomalies of copyright law in chipmusic. The following section presents an overview of the problems related to copyright in chipmusic.

7.2 The dialectical relationship between plagiarism and chipmusic

This section examines closely the dialectical relationship between plagiarism and chipmusic. This dialectical relationship stresses that while plagiarism defines chipmusic culture, chipmusic culture also shapes how plagiarism is experienced in the chipscene. To demonstrate this, I examine copyright issues in the chipscene and the problems chipmusicians have to confront in their creative practices. During the 1980s, demosceners used extensively sound samples on Amiga, primarily due to its technological superiority over other 8-bit platforms.¹⁷² Goto80 clarified that demosceners created their own samples by ripping a CD, vinyl disc, or synth. This was a challenging process as it required developed technical skills to get good sound quality. “[S]ince everyone used basically the same tools, your collection of samples could be important to your personal style. It could be what set you apart from the competition”, he declared (Goto80 e-mail communication, 2012). Sampling was central to one’s work, and it was a way to recognise demosceners’ distinct style. Thus, the nature of chipmusic as a collection of samples firstly has as an effect on the development of plagiarism practices, considering the fact that samples can be used by other chipmusicians.

One of the popular phrasings to discourage sample plagiarism was “Don’t steal my samples!”. As outlined in chapters four and five, sampling from commercial media, such as movies or popular music was perfectly acceptable and appropriate. “You didn’t even have to credit anyone”, Goto80 stated (*ibid*). Demosceners used pop and classical music pieces as

¹⁷² For an extensive analysis of the capacities of Amiga sound music programs, see Kotlinski 2009.

soundtracks to their demos. However, using samples from a fellow demoscener was not celebrated, suggesting thus a double standard. “Even though many did it, it wasn’t something you bragged about exactly. Because it was so easy. Anyone could do it. Didn’t require any skills” (Goto80 *ibid*). The message that Goto80 conveyed here is that the characterisation of “unskilled”, or in demoscene discourse, “lamer”, was shameful and had to be avoided by all means.

The practice of creating chiptune covers of pre-existing musical pieces continued in the chipscene, extending the continuum of plagiarism. During fieldwork, I found that the use of covers was ubiquitous in staged performances. gwEm explained for me this practice by clarifying that it was a means of getting across to the audience. People recognised the songs and hence they developed a sort of understanding about chipmusic, by drawing upon familiar sounds. Zeilinger discussed a situation where a chipmusician faced legal penalties for using copyrighted material (Zeilinger 2012). In 2009, Andy Baio released “Kind of Bloop”, an 8-bit version of Miles Davis “Kind of Blue” (1959). Baio’s project was funded by means of crowdsourcing on Kickstarter.com and the generated funds were given to the contributors of the album. In his attempt to protect himself against copyright infringement in terms of musical content, he purchased the appropriate licences, a practice which was uncommon in the chipscene, as Zeilinger has outlined (Zeilinger 2012:19). However, the photographer of the album cover sued Baio for using a pixelated remake of the artwork as “Kind of Bloop”’s cover art (*ibid* 20). In short, Baio settled out of court for \$32,500, and chipmusicians discussed the incident thoroughly in online communities, asserting that copyright law pushes them against digital and collaborative creativity.¹⁷³

¹⁷³ As Demers highlighted, defendants in cases of copyright infringement often choose to settle out of court, in order to avoid paying attorneys’ fees (Demers 2006:120). As she elucidated, the infringer is always required to remove the copied materials from the derivative work (*ibid*).

In the early days of the chipscene, chipmusicians did not apply any copyright licences to their released work. During the first decade of 2000, when chipmusic drew the attention of popular music audiences, chipmusicians observed a number of cases of chipmusic plagiarism. Prior to Baio's case, and even before the time of "Acidjazzed Evening", musicians who came across the freely available chiptunes on diverse online communities, used part of or entire musical pieces for the creation of their own compositions. The primary issue, then, was that chiptunes in their original file form (.mod, .sid, and other open file types), could be opened and edited as they did not represent fixed creations. In contrast, every chiptune was a dynamic file, a performance in the making.

For chipmusicians, open file types encourage creativity, as other members of the chipscene network have the opportunity to experiment with a chiptune and create a new composition, or collaborate on a pre-existing one – always acknowledging the original creator(s). A point of interest here is chipmusic's status as a medium where certain forms of preservation of the work reveal aspects of its history, in ways that can potentially provide direct evidence of copyright infringement. This is something rather unusual in music, considering that the creative process cannot be traced through sound recordings that are closed files. This can only be achieved when a musical piece is recorded and edited using the same digital audio workstation (DAW), then the output is saved in a DAW file format that can be opened and edited, and provided that all creators save their edited files. However, in popular music, it is not accustomed to listen to music using DAWs as a) this is specialist commercial software and b) the file size would be extremely large to circulate. This is not the case with chiptunes though, as all trackers are freely available and the file output is small enough to fit a floppy disk.¹⁷⁴ In later years, as compressed music file types such as MP3

¹⁷⁴ See also chapter four regarding the file size of chiptunes.

developed, the use of open file types in the chipscene was limited.¹⁷⁵ Despite this change, music plagiarism situations still occurred.

Following the popularisation of chipmusic and the broad circulation of chipmusic during the 2000s, chipmusicians observed an alarming number of chipmusic plagiarism offences. Lists of allegedly plagiarised chiptunes were published in online communities and blogs.¹⁷⁶ Chipmusicians started discussion threads to argue about the situation. The first “Hall of Shame” sections appeared across online chipmusic communities, stating details of the plagiarised chiptunes, as well as any actions taken against them. Zeilinger mentioned the case of *Once We Were Robots*, a repeat offender with some commercial success, who was publicly shamed by chipmusicians (Zeilinger 2012:26). This dramatic phenomenon of public expression of hate was called ‘chiphate’.

The phenomenon of chiphate refers to the practice of chipmusicians who exchange hateful messages online for musicians who plagiarised chiptunes without getting permission or referencing the original composers.¹⁷⁷ In this respect, music plagiarism is seen as shameful activity, whose binary opposite is the honourable practice of acknowledging the original creator. In the chipscene, honour and shame are inherent concepts in relation to the moral aspect of ownership, and not to general “socially appropriate behaviour”, as often observed in anthropology (for example, Herzfeld 1980, Peristiany 1965). In order to protect their moral rights, chipmusicians adopted Creative Common licences.

¹⁷⁵ For copyright issues and MP3 distribution, see Sterne 2012.

¹⁷⁶ Anders Carlsson keeps an updated list of plagiarised chiptunes on his blog: < <http://chipflip.wordpress.com/plagiarism/>> accessed 25/10/14.

¹⁷⁷ The use of pre-existing copyright music in creating a chiptune was considered acceptable.

Creative Commons (CC) are copyright licenses that enable copying, distribution, editing, remixing, and recreating of content (Creative Commons website).¹⁷⁸ Creative Commons do not necessarily restrict the use of copyrighted content – although there are some types that prohibit its commercial use; rather, they encourage the use of protected material by means of attribution of the original creator. Chipmusicians embraced Creative Commons as they were easily applied on the internet and were in line with chipmusicians’ moral philosophy and open source ideology.

Zeilinger wrote extensively on the case of Crystal Castles, a Canadian electronic music duo, who repeatedly violated all the terms of Creative Commons-licensed chiptunes (Zeilinger 2014:306). This event inflamed chiphate. Chipmusicians spread hate speech against Crystal Castles and shamed them publicly at any given opportunity.¹⁷⁹ In a sense, chiphate enhanced the connectedness of the chipscene network, as chipmusicians organised collectively against acts of music plagiarism. However, certain chipmusicians suggested that Crystal Castles’ shameful behaviour should be seen as positive for the overall purpose of the chipscene, as more people learnt about its existence, since the incident was covered by popular media (Zeilinger 2014:307). Zeilinger noted though that the duo denied their actions as well as any knowledge of, or interest in, chipmusic and its network (ibid 312).

There were other cases of chipmusic plagiarism where the perpetrators admitted their actions and apologised in public. For example, Fitts For Fights, a Norwegian band, repented for their actions and commented that their intention was not to make any profit.¹⁸⁰ Similarly,

¹⁷⁸ Creative Common Licenses, < <https://creativecommons.org/licenses/>> accessed 25/10/14.

¹⁷⁹ One such example of Crystal Castles’ public shaming and mocking was a chiptune composed by chipmusician Dexter entitled “Crystal Castles pisstake”. Dexter sampled Crystal Castles’ music and added lyrics, in which he pretended to be Crystal Castles stating their plans to “steal your [chipmusicians’] fame with our evil thefting schemes”. (Crystal Castles pisstake, uploaded by Dexter, published on 8bitcollective.org 6/5/08)

¹⁸⁰ The video of Fitts For Fights’ apology can be found on <<https://www.youtube.com/watch?v=Q63gG6ikXBk>> accessed 20/10/14).

8bitstellar posted an apology on Chipmusic.org clarifying he removed infringed files and asking for forgiveness from his fellow chipmusicians (8bitstellar post on Chipmusic.org, 28/11/13). Other forms of plagiarism were prominent in the chipscene, as for example the case of Torres' misappropriation of code in his chipmusic-making Game Boy cartridge *Bleep Bloop* (see chapter four). Torres did not respond with an apology regarding this incident. Pursuing a lawsuit is not common in the chipscene as it may be costly with little restitution. For example, having contacted attorneys, Bunnymajs from Sweden commented on Chipmusic.org that chipmusicians who take legal actions against 8bitstellar "would cost more than it would earn you" (Bunnymajs post on 28 November 2013). Demers explained that intellectual property litigation generally occurs only when there is enough money at stake, concluding that artists who remix avoid litigation as there may be no financial gain whatsoever (Demers 2006:113). In this respect, there seems to be little action that chipmusicians can take against cases of music plagiarism, especially when it comes to resolving questions that are primarily about honour and shame.

7.3 Construing chipmusic in legal discourses

In this thesis, chipmusic has been previously defined from the perspectives of anthropology and musicology but now I am going to examine chipmusic from the perspective of music as a cultural form. In this sense, musics assume "local meanings in the lifeworlds of those who incorporate public spheres, they provide symbolic resources for the construction of identity and community, subaltern appropriations, parodic interventions, and counterhegemonic narratives" (Coombe 1998:7). The law, as Coombe illustrated, does not regard the meaning of music for those whose lives it figures. Rather, in legal discourses, meaning is concentrated on those who "own" the music, in terms of producing (ibid 8). Here, I will present chipmusic in terms of production, which is primarily encountered in legal discourses.

The chipscene can be seen as a “proto-community”. As Coombe explained, proto-communities emerge from fun, shared desires, and contingency, rather than an intentional expression of beliefs, such as politics (Coombe 1998:106). Two characteristics of the chipscene as proto-community are useful in defining it in the context of law: prosumption and remix culture.

The theory of prosumption in the twenty-first century refers primarily to user-generated content online.¹⁸¹ Ritzer and Jurgenson described prosumption as a new form of capitalism, in which consumers become producers (Ritzer and Jurgenson 2010:31). The theory of prosumption has been examined predominantly from the perspective of economics, focussing on the hegemonic power of companies that drive amateurs into producing commodities and services. Chipmusicians create and define their own market, in their own terms, although monetary exchange is not always present, as certain chipmusicians make their chiptunes available for free.

Chipmusicians as prosumers have a wide range of tools and methods available to create their products.¹⁸² One of the core methods in the creative process is remixing media. As Carlsson described, remix culture encompasses the use of computers, software, the internet, and digital media (Carlsson 2008b:6). In principle, people make new culture with existing culture (Aufderheide 2010:275). Remixing can also be associated with the practice of bricolage:¹⁸³

[P]eople continually engage in cultural practices of bricolage - resignifying media meanings, consumer objects, urban spaces, and cultural texts in order to adapt them to their own interests and make them fulfil their own purposes. (Demers 2006:104)

¹⁸¹ For the theory of prosumption, see also chapter two.

¹⁸² See chapter five.

¹⁸³ For an analysis of bricolage, see also chapter four.

Chipmusicians adapt selectively aspects of the available hardware, software and services to their practices selectively. For example, chipmusicians use commercial online music services, such as Bandcamp and Soundcloud, but they set the price of their released albums according to the demands of the chipmusic market. On this account, chiptune albums usually sell for £5 up to £10, so a £20 price tag would be unrealistic.

In chipmusic-making, remixing as a practice occurs in three ways. Firstly, in the form of chiptune remixes, which should not be confused with the homonymous *practice* of media remixing. Remixed chiptunes are alternative versions of previous chiptunes. One such example is Gallefoss' remix of "Acidjazzed Evening", which was originally composed by Suni. The second remixing practice encompasses cover versions of songs that have been previously recorded by others, as for example Baio's "Kind of Bloop". And finally, sampling is a technique in which parts of pre-existing sound recordings are reused in new musical pieces, as in the case of Amiga-sampled chiptunes described in the previous section.

In popular music, sampling is seen as a transformative means of composition (Katz 2004:157), which extends the notion of creativity. In the context of sampling, to be creative also has economic ramifications, as it is a means of marketing a musical piece to an audience that has not been previously thought of (Frith 1993:13). Sampling copyrighted content can be expensive and there are several musicians who attempt to reconfigure samples to an extent that they cannot be recognised, in order to avoid paying for licenses that will allow them to use copyrighted material (Demers 2006:10, Rimmer 2007:136).¹⁸⁴

¹⁸⁴ For this particularly, see the example of DJ Spooky in Demers 2006:10.

At the beginning of this chapter, I clarified that copyrights entail moral and mechanical rights that relate to authorship and reproduction practices, respectively. As Carlsson and Zeilinger have argued, moral rights are valued more over mechanical rights, which are related to the economic benefit of copyrights, expressed, for example, through royalties (Carlsson 2008b, Zeilinger 2014). As Demers underlined, the system of mechanical rights has been developed by music industry specialists and aims at ensuring that creators are financially compensated for public performances of their work (Demers 2006:115). From the perspective of chipmusicians as prosumers, Carlsson stressed the importance of moral rights in terms of acknowledging one's work (Carlsson 2008b). In looking at the demoscene, recognition served the acquisition of social status and the wider distribution of their work, a twofold purpose which is still prominent in the chipscene.

Zeilinger has argued that chipmusicians oppose the use of conventional copyrights, for these are against their moral ideology. He conveyed that Baio was an exception to this. My suggestion is that Baio's case simply marked a significant change in the ways chipmusicians have engaged with legal regimes. As previously demonstrated in this thesis, the chipscene is polydiscursive.¹⁸⁵ Although in the early days, the first generation of chipmusicians centred on the moral philosophy of intellectual property rights, when the chipscene network expanded and alternative economies were introduced, at the same time other discourses developed. In that sense, certain chipmusicians are opposed to mainstream uses of copyright, for ideological reasons. Others find ways to work around its limitations either by purchasing licenses, such as CC, or by using online music services as Bandcamp.

There is a strong sense in which the interaction of copyright and chipmusic is a smaller version of the broader struggle to update copyright law in the digital age, so that it

¹⁸⁵ See chapter four on the three generations in the chipscene as well as their ideological differences.

still yields sound public policy outcomes. Copyright was less of an issue ten or twenty years ago, precisely because the means of dissemination were less well-established, and the value of the asset was more niche and fairly local. In all, chipmusicians, like any other musicians, are interested in expressing their creativity, finding different pathways depending on their ideology.

7.4 Outlining copyright issues in networked creativity

In chipmusic, copyright presents diverse problems in relation to music practices, as outlined in the previous section. In some respects, copyright undermines creativity. A number of my informants expressed that they are not keen on uploading their work online as they do not feel safe. Rather, they prefer more traditional ways of dissemination, such as releases through record labels that would ultimately act as representatives in case of copyright infringement. This is not ubiquitous in the chipscene though. And one cannot expect all musical practices to be associated with mainstream creative channels, particularly at a time when alternative economies challenge the nature of capitalism.

Firstly, chipmusic is susceptible to plagiarism due to its openness. The chipscene is an online community where registration is not required. Chiptunes are available to download on the internet, and if found in their tracked format, that is, .mod, .sid or similar file types, they are easy to manipulate and use. New technologies and, more particularly, the internet, have had an impact on how consumers share cultural content (Rimmer 2007:8). In looking at internet-related consumption practices, with the emergence of digital files and the expansion of infrastructure, the carrying capacity is increased (Toynbee 2001:20). However,

control over publishing cultural forms on the internet has been made more difficult (ibid 21), often resulting in illegal practices, such as piracy. Due to the intangible nature of the internet, as well as of digital goods, people often consider internet crimes as insignificant. Thus, the lack of materiality online has an impact on how people understand piracy and theft on the internet.

As demonstrated in the case of “Acidjazzed Evening”, copyright may not always protect the legal author’s rights – mechanical or moral – as it can be exploited in the hands of those in power. In addition, copyright is still tied down to geographical boundaries, according to the Berne convention and the TRIPS agreement, in the sense that every case of copyright infringement is examined at a local level, as is the case with other sets of laws as well. Moreover, this can be illustrated in the example of “Acidjazzed Evening”, which was originally created by a Finnish chipmusician and remixed by a Norwegian. As Kauppinen writes, “[b]y Finnish law, any production automatically receives copyrighted status” (Kauppinen 2007), a fact which was not recognised by USA copyright law at the court. Although there are certain international copyright agreements, copyright laws vary cross-culturally.

The issue of cross-cultural creativity is further complicated by the chosen method of dissemination, in the particular case: the internet. In legal discourse, internet law is rarely autonomous (Bowrey 2005:20). Although there are discussions on how copyrights can be re-configured in relation to products of networked creativity, courts of nation states follow previous closed court cases as guidelines. Creative Common licences are known to have been enforced in courts since 2006 (see the Curry vs Weekend case at the District Court of Amsterdam). Zeilinger has underlined that Creative Commons licences offer a practicable alternative to copyrights as “they are designed to serve creators who are uncomfortable with

the rigidity of conventional copyright law, and their flexibility enables creators to specify in detail what kinds of uses they want to allow or prohibit” (Zeilinger 2012:25). This is certainly an opening towards the development of internet law, and more specifically, towards the creation of more social actor-oriented licences (whose significance has been argued by Bowrey 2005). All Creative Commons licences (version 4.0) address moral rights. But as Zeilinger has argued, CCs are not able to protect chipmusicians’ interests according to the morals to which they adhere to (Zeilinger 2014:307).

The issue at stake in relation to Zeilinger’s argument is the definition of moral rights. In legal discourse, moral rights are independent of economic rights and include primarily the right of integrity and the right of attribution. The integrity right allows the creator to prevent distortion of his/her work to the extent this change would affect his/her expression. Attribution rights refer to the paternity of the work (Zabatta 1992:1103). Creative Commons encompass these traits. Nevertheless, the moral ideology of creators is not taken into consideration. For example, if one remixes a copyrighted work protected by the Attribution CC BY licence and credits the original creator, the moral right is protected. However, if the original creator does not like the remixed outcome and bases his/her judgement on ideological grounds (i.e. does not agree with the specific changes) then, legally, there is no conflict. During fieldwork I found that chipmusicians thought of moral rights as based on their belief of what is moral and what is not – in other terms, their extended ideology regarding chipmusic. Zeilinger has suggested that copyright licences would benefit from encompassing the ethical framework that has been established within a creative community rather than rely entirely on the legal rhetoric (Zeilinger 2014:307). Although this would certainly be in line with the perspective on social actor-oriented licences, it would imply various challenges – for one, the definition and application of a framework of morality, which is relativistic and not universal.

Another suggestion aiming at securing the application of copyright law is the doctrine of fair use, which allows part of a pre-existing musical piece to be appropriated in a new composition. However, there are significant issues in the definition of what the limitations of the length of the sampled part are, and how can fair use be applied in the case of a work whose core idea has been copied (Collie and Gorman 2011:5).¹⁸⁶ Collie and Gorman have proposed a solution to sampling in digital music based on the quantity and quality of a sample used in a new work. This suggestion sets a specific framework in which fair use can be defined, and therefore, applied. However, this is rather problematic. In this sense, conceptually, the digital medium presents no conceptually new challenge to copyright law, just the same conundrum in a slightly different guise. In the case of “Do It”, Abbott demonstrated that the producers sampled 80% of “Acidjazzed Evening” (Abbott 2007:10). The issue there though, was that the situation was not even examined due to the prevalence of national state law. Hence, although fair use may be useful, other issues related to the application of copyrights at a transnational level should be elucidated first.

Carlsson presented a very truthful conclusion, which highlighted the need to humanise copyright. Proto-communities, prosumers, remix cultures, and other social agents of networked creativity are not satisfied by current legal regimes and the way copyrights are handled. Carlsson defended the significance of moral rights over mechanical, pointing out that prosumers aim at copying, editing, and re-creating (Carlsson 2008b:7), suggesting that this will be an ongoing practice. Additionally, perpetual copyright is not a solution, as it limits significantly chipmusicians’ actions in their attempt to “reformat the planet”, as the same-titled documentary suggested (Carlsson 2008b:9).

¹⁸⁶ Or indeed, what “the heart” of a work might even mean, a dispute which arises in some form or another in nearly every litigated copyright infringement case, whether to do with fair use or not.

A number of chipmusicians and demosceners adopt a policy that is anti-copyright. The aim is to negate the capitalist property relations underlying different national IP legislations by forming alternative moral economies of collaboration, fair exchange, and sharing (Zeilinger 2012 and 2014:306-7). For example, Morton developed COPY-IT-RIGHT, the anti-copyright approach to making and freely sharing Media Art. COPY-IT-RIGHT encouraged people to make faithful copies, caring for and distributing Media Artworks as widely as possible (jonCates 2009:22).

Lessig has previously proposed to limit the time-span of copyright to five years, after which the creator of the work of art can renew it online with a small fee (Lessig 2004:251). If the creator does not renew his/her copyright, then the work would fall in the public domain and, thus, be available for remixing, re-use, and re-appropriation without the fear of copyright infringement. Again, this would not be any kind of conceptual change in the copyright system. It would just be a shift in the existing balance of interests away from creators.

There is, though, one aspect which still remains a grey area. Can social agents of creative networks represent themselves in cases of copyright infringement? Considering the nature of prosumption, in which consumers constitute and configure an alternative economic marketplace, intellectual property litigation is problematic in practice, due to the imbalance of attorneys' high costs against the output of court cases. At the moment, there is a rift between networked creators and conventional legal institutions, as both centre on the needs of their own regimes.

Summary

Chapter seven has overviewed chipmusic in terms of legal practices, particularly in relation to copyright and its challenges. This chapter examines the challenges related to copyright in the case of chipmusic, where collaborative projects and open files with tracked music are ubiquitous. Here, I presented closely the notorious case of “Acidjazzed Evening”, outlining the ways in which it was examined in and out of court, as well as the ways in which music industry defendants exploited copyright loopholes. Secondly, I presented the roots of copyright practices in the demoscene, as well as diverse issues related to plagiarism in the history of chipmusic. I centred on describing how social change was negotiated in the chipscene, particularly in the expression of ‘chiphate’, following such incidents of music plagiarism. In the third section, I gave a definition of chipmusic in legal discourse. Finally, the last section aimed at summarising how sociocultural change, as mediated through the development of technology, affects networked creativity.

Chapter 8. Authenticity, genre dynamics, and differentiation in fakebit

The last chapter of this thesis examines a theme that has previously emerged in other chapters (notably, four and five): discourses of authenticity in chipmusic as a method of differentiation and the ways they infiltrate the conceptualisation of genre in the chipscene. First I examine the theoretical and conceptual framework of authenticity and genre in the fields of anthropology, ethnomusicology, and popular music. Secondly, I provide ethnographic examples of related discourses in chipmusic. In analysing both perspectives, theoretical and empirical, I discuss the emergent dynamic character of genre in chipmusic.

8.1 Theorising authenticity as differentiation in chipmusic

Authenticity in music has been prominently examined from the perspective of philosophy.¹⁸⁷ As accustomed in the field of the philosophy of music, most studies begin with etymological definitions of terms. Kivy, for example, who has written on authenticity and its relationship to musical performance, affirms the definition of ‘authenticity’ in the *Oxford English Dictionary* (Kivy 1995). However, relying on a Western cultural context results in a monolithic approach, ruling out cross-cultural perspectives on language which are necessary when researching musical cultures. Feld, for example, has extensively written on the linguistic diversity in Papua New Guinea, when discussing the musical vocabulary of the Kaluli (Feld 1982). As Feld has demonstrated, certain words from the Kaluli vocabulary often represent metaphors which alter significantly the etymological meaning of the word (ibid). In this respect, the word ‘authenticity’ implies different meanings across diverse cultural contexts.

¹⁸⁷ See for example the work of Adorno 1973, Scruton 1979, Kivy 2002, and Davies 2003.

Authenticity implies having a set of rules that define a series of processes as archetypal and authoritative. For hipsters, for example, being hip is the expression of authenticity, as opposed to being square (Ford 2013). Punk rock authenticity lies in the rawness of music style tied in with do-it-yourself ideology (Reynolds 2006). Outside music, in fashion, for example, authenticity is inextricably related to the brand. In the art world, the debate on authenticity is directed towards identifying correctly the creator of an artwork. To understand, then, what ‘authentic’ means, one should examine the cultural and social context in which authenticity is situated.

Middleton has highlighted that the value of music “is guaranteed by its provenance in a certain sort of culture with certain characteristic processes of cultural production” (Middleton 1990:139). He explained that the judgement of authenticity is directed to the practices of someone else rather than the person who does the defining (ibid).¹⁸⁸ Thus, by looking at the agency of musical works, i.e. the interaction between music, audiences, creators, and other social agents in the particular milieu, one can better understand the role of authenticity in the particular nexus of musical production.

Cultural issues of authenticity and inauthenticity are often discussed in anthropology (Lindholm, 2008, Fillitz and Saris 2013, Theodossopoulos 2013). In musicological discourse, authenticity was an engaging topic in the fields of popular music studies and ethnomusicology, as well as their intersection (for some examples see Finnegan 1989, Frith 1988, Stokes 1994, Auslander 1998, Looseley 2003, Nettle 2005, Cogan and Cogan 2006, Barker and Taylor 2007, and Stevens 2008). More specifically, in anthropology, Demian

¹⁸⁸ This argument echoes anthropological perspectives on authenticity (Fillitz and Saris 2013, Theodossopoulos 2013). Anthropology can be particularly productive in looking at authenticity as a sociocultural phenomenon. However, there is always the risk of anthropological correctness, considering that anthropologists regard all cultures as authentic and unique (Theodossopoulos 2013).

and Wastell suggested that creativity and authenticity are not so far apart, with creativity being “an inherent process of authentication against the threat of mass production [...]” (Demian and Wastell 2007:121). This property of authenticity is also found in the ethnographic study of music, particularly in the work of Cogan and Cogan who see commodification and consumerism as negative elements attached to authenticity (Cogan and Cogan 2006:70). From a different perspective, Stevens (2008) finds that karaoke participants in Japan evaluate musicians and music genres on how ‘authentic’ they are; the more authentic a musician or genre is, the better their quality.

The principal problem with authenticity is that it is a dynamic concept reflecting subjective judgement and its definition differs according to the specific cultural context in which it is defined (Hobsbawm and Ranger 1983). Auslander extends this thinking in relation to music:

Musical authenticity may seem neutral, but the questions of who gets to define it and who gets to apply that definition are ideological ones that depend on the social position, and gender, of the person doing the defining. (Auslander 1998 in Cogan and Cogan 2008:70)

As Stokes has also observed, authenticity is not an inherent property of music, musicians and their relations to an audience, but rather it offers a way of distinguishing one’s own music (Stokes 1994:6-7, perspective also seen in Frith 1988:71 and Auslander 1998). As Frith (1988) emphasises, authenticity is a social context wrapped around music properties, which is the result of prior musical or extra-musical knowledge and beliefs. It would be beneficial to see this context as a Benjaminesque *Spielraum* (room-for-play), where elements of play, game, performance, gamble – which are also the multiple meanings of the word “*Spiel*” in German – co-exist, giving continuous possibilities for creation. Thus, creativity is expected to have a significant performative aspect within the context of a *Spielraum*.

Authenticity also structures power play in music. Questions of authenticity define contexts of boundary and difference making. It is a way to separate one's discourse from another and to mark one's territory often by discriminating and restricting others who do things differently. This argument ties in with Bourdieu's (1990) theory of the field of cultural production that has been outlined in chapter five. Every chipmusician or collective of chipmusicians who are distinguished by a common feature, for example, the same ideology regarding chip-music making, act in the field of the chipscene in a relational manner by positioning themselves in terms of difference or opposition to other chipmusicians in the chipscene.

For example, the first generation of chipmusicians regarded authenticity as a way to differentiate this particular musical genre from other genres of computer, electronic, or popular music. The agency of early home computer and videogame platforms shaped the intentions of the first generation in terms of music-making. If we examine the historical dimensions of this generation, in this early period of chipmusic history, authenticity was centrally placed and affiliated with the medium of music production. The first generation of chipmusicians formulated technological authenticity as traditional practice, and became themselves the 'tradition bearers'.

Herder illustrated traditional practices as sources of authenticity by looking at folk practices. He was fascinated by folk poetry and was interested in the preservation of crystallised folk traditions, as he assumed that "the oldest, most original forms of poetry would be the most perfect" (Bendix 1997:37). To a certain extent, authenticity in this sense becomes a doctrine, implying that the value of any 'good' music or creative practice lies in

its ‘old’ and ‘exotic’ aspects (Nettl 2005:372).¹⁸⁹ This doctrine is well reflected in the discursive patterns of the first generation of chipmusicians, particularly, in the ways that music was valued according to the algorithmic elegance of code produced by old, original hardware.

According to Herder, a way of being authentic is by doing things ‘your’ way without conforming to other people’s ideas and expectations (Taylor 1992:23).¹⁹⁰ Projecting one’s individuality can be problematic in chipmusic, particularly in the case of the first generation, who occasionally make demagogic adjustments to their creative work in order to espouse the expectations of their audience that are shaped by what is considered to be traditional in that context. Thus, the expectation of original hardware does not allow chipmusicians to express their individuality if they wish to use alternative music production ways. For this reason, authenticity becomes a means of exclusion from the first generation.

More specifically, Herder found that each individual’s authentic identity was connected to a specific national identity “that provided the only true basis for political unity” (Schweber 2012:310). Herder promoted cultural understanding based on racial differences, a trope which was later adopted by anthropology. In modern and cosmopolitan settings, the idea that national identity is intertwined with musical authenticity, can be questioned. For instance, Stevens demonstrated the example of Karaoke in Japan, in which performance entails ideologies of intercultural identity. Stevens argued that the evolution of Japanese popular music is a mixture of cultural borrowings from the United States and internal cultural change in Japan, which has resulted as an effect of the political position of Japan and the United States in the global political arena (Stevens 2008). Stevens found that karaoke

¹⁸⁹ See also Meizel 2011:52 on the idolisation of authentic old legends in *American Idol*.

¹⁹⁰ Meizel has also explained authenticity as a way of demonstrating personal expression among *American Idol* contestants (Meizel 2011). For example, she mentioned melismatic techniques as one such expression of a singer’s authenticity (ibid 78).

consumers tend to only choose songs that are easy to sing, thereby effectively rejecting the real (music produced by original artist) and accepting its clone (music produced for karaoke) as a substitute (ibid 50). In looking at chipmusic, the sense of national folk is only communicated in the case of music compilations. Although certain chipmusicians choose national musical elements to express their individuality in the chipscene network, this is not a well-established trend.

8.2 Towards a dynamic conceptualisation of genre

In the previous section the relation of authenticity and genre emerged from a theoretical point of view. Authenticity can define a series of processes, one of which is genre. I am interested in examining genre, firstly, within the discourse of chipmusic – which has demonstrated a remarkable networked, and therefore, dynamic profile in this thesis – and secondly, from a conceptual perspective, aiming at contributing to the debate in genre theory. In popular music studies, genre has been a topic of interest for the last thirty years (see for example, Frith 1988, Brackett 1995, Negus 1999, and Holt 2007). Holt highlighted that genre theory in the study of music has been methodologically challenged (2007:1) and that genre theory has been primarily successful in being implemented in and developed by film studies (ibid 4). An extra layer of complexity according to Holt was added by the examination of hybridity in musical culture that draw attention away from taxonomies (ibid 5).

As Holt illustrated, style regulates meanings of diverse aspects of culture (Holt 2003:78). It not only is a means of categorising music based on its characteristics (i.e. rhythm, melody, tempo etc) but also, is socially informed, revealing dynamics and communication patterns among musicians.

Brackett identified genre as “musical code” that connects musical and extra-musical attributes (Brackett 1995:9). Holt (2007) and Frith (1988) suggested that this categorisation of music serves primarily the music industry as genre is:

[...] a tool with which culture industries and national governments regulate the circulation of vast fields of music. It is a major force in canons of educational institution, cultural hierarchies, and decisions about censorship and funding. (Holt 2007:3)

Frith defined genre as a “loose agreement” among all interested agents (i.e. fans, musicians, critics, disc jockeys) rather than a fixed entity (Frith 1988:88). For this reason, genre boundaries are fluid, as Holt explained (Holt 2007). Consequently, genres are dynamic and subjected to changes according to diverse discourses in a particular sociocultural context.

Holt argued that “human agency is never formless, and even the simplest cognitive functions depend on categories and typologies (2007:2). As Derrida has explained in ‘The Law of Genre’ (1980):

[A] text cannot belong to no genre, it cannot be without or less a genre. Every text participates in one or several genres, there is no genreless text; there is always a genre and genres, yet such participation never amounts to belonging. And not because of an abundant overflowing or a free, anarchic, and unclassifiable productivity, but because of the trait of participation itself [...] (Derrida 1980:65)

Derrida’s argument can be adapted to the study of musical genre. In his account, genre participation is dynamic – I would even argue that genre has a networked, relational aspect. Although the level of participation may change due to the dynamic characteristic of networks, the presence of social agents remains in the network. This is a productive way to conceptualise genre in music – rather than a mere taxonomy. Genre is dynamic and evolves. In the following two sections I provide ethnographic encounters in relation to the concept of genre in chipmusic and the differentiation of fakebit as negotiated in chipmusic discourses.

8.3 Perspectives on fakebit

Fakebit has been previously defined as “music which used the sound of 1980s chipmusic but is completely produced with regular modern samplers, synthesizers and sequencer programs” (Pasdzierny 2012:180). Its pronunciation is a word play rhyming ‘eight-bit’ with ‘fakebit’, changing the suffix from ‘eight’ to ‘fake’, to distinguish it from ‘8-bit’. During fieldwork, my informants abstractly defined any kind of chipmusic that was not composed on early home computers or videogame consoles as fakebit. They characterised the aforementioned platforms as ‘original’ hardware, to distinguish them from advanced computers that developed after the 1990s.

Certain chipmusicians understand fakebit as the practice of faking chipmusic by using modern technology to reproduce 8-bit sounds. In this instance, the suffix ‘fake-’ bears derogatory meaning. However, others use the term to define a subgenre of chipmusic which identifies a particular method of chipmusic-making, i.e. with the aid of modern technology. One common question in online chipmusic communities and social media is “Is this chiptune/chipmusic?” (see, for example, discussion threads at Chipmusic.org or posts on Chiptunes=WIN Facebook group). This outlines the importance of clarifying and defining chipmusic as genre and as method. On one level, the issue of fakebit appears to be morally significant for some chipmusicians, and on the other hand, the discussion on fakebit becomes a trolling topic for others who see it as an opportunity to deceive and create drama in the chipscene.¹⁹¹

¹⁹¹ One such example was the group FakeBit Police District (FBPD) created in July 2012 on Facebook by Marine Catrix, an organiser of chipmusic events in Paris, France. A post followed the group creation, stating: “Against counterfeiting chiptune made with plugins or computer. Denounce this chEaptuners. Counterfeiting a (sic) 8bit sound is punishable by law. 8bit not fakebit. When you listen fakebit one puppy die (sic) somewhere in the world.” (Marine Catrix, Facebook post on FBPD group, 2012)

The mutually defining relationship between chipmusic and fakebit is rather problematic, and originates in the definition of ‘original’ platforms. Soundchips were engineered to be simulations of real sounds, where reality suggests the material presence of a musical instrument. In this sense, soundchips fake this physical presence, and fakeness then becomes a central aspect of the original soundchips. Secondly, chipmusicians often discuss chipmusic as 8-bit music, and place fakebit at the other end of the spectrum (‘non-8-bit’). As demonstrated in chapter five chipmusic is composed on diverse ‘original’ platforms, some of which have 8-bit sound resolution or are built upon 8-bit architecture. However, there are 1-bit, 16-bit, 32-bit and so on, platforms that are employed in chipmusic-practices. As a result, technically speaking, not all chiptunes are 8-bit. The argument on the validity of 8-bit as a common characteristic in chipmusic, then, does not stand. This suggests that the dispute over the originality of technology may have social bearings rather than technological ones, and this will be primarily analysed in the last section of this chapter.

In addition to the above reasoning, there is a third feature that often complexifies perspectives on fakebit in the chipscene. Certain platforms enable the composer to use samples in his/her musical work.¹⁹² As outlined in chapter seven, the manipulation of samples in the demoscene was often problematic, primarily due to musical plagiarism and authorship issues. However, there are some chipmusicians who consider this practice as cheating in chipmusic-making, and sampling as a bifurcation of fakebit. It should be noted, though, that this is not a unanimous ideation, as there are others who view it as a means of extrapolating sources of creativity.

One of my key informants, Janne Suni, identified his practices as fakebit considering he used samples in his chiptunes. I asked him his perspective on sampling:

¹⁹² See further in chapter five and seven in this thesis.

JS: [responding to a previous question] I'm not really familiar with the sound synthesis formats on Amiga (so-called real chiptunes) – I'm mostly a fakebit, remember?

MP: Where do your samples come from?

JS: I've used a lot of drum samples that originate from Commodore 64. So they are sampled versions of chip-generated sounds. I think it's just a big grey area. (Janne Suni synchronous chat discussion online, 2013)

For Janne, being a fakebit musician is a reason for his exclusion from the first generation, to recall Herder's concept, as his practices are not accepted by purists. Janne pointed out that sample-based fakebit is a grey area, and does not offer any insight as to why there is such a division between 'real' and 'fake' chipmusic. At that point in fieldwork, I turned towards scrutinising whether fakebit *sounds* any different than chipmusic.

Roger Cruz, who I introduced in chapter four as the founder of the netlabel Chip-Con International, suggested that fakebit has a more 'over-produced' sound, so if a chiptune sounds more polished, then it is most probably fakebit (Roger Cruz asynchronous e-mail discussion, 2013). This is due to the use of high-end technology in contrast to low-level, original platforms. Roger suggested that such concrete examples of fakebit are found in Indonesian chiptunes, as the infrastructure of the local scene had the funds to invest in music production.

In terms of distinguishing fakebit from chipmusic generated on original platforms, one of my key informants, Anders Carlsson, has explained that it is possible to identify fakebit that emulated Commodore 64 sounds due to the imperfections of a particular version of an emulation of the original soundchip, the SID:¹⁹³

As far as I'm concerned, the SID [C64 soundchip] is not properly emulated still. It doesn't sound the same. And that's even when the emu-nerds [emulation nerds] have spent sooooo much effort in trying to do it. I don't know why they can't do it perfect." (Anders Carlsson asynchronous e-mail discussion, 2012)

¹⁹³ For an explanation on soundchips and the SID chip more specifically, see chapter five.

Anders suggested I contact the High Voltage SID Collection (HVSC) group, who were specialists in SID soundchip emulations, to inquire further on this matter. The HVSC representative responded explaining the complex architecture of the SID soundchip. The SID is a mixed mode chip with digital and analogue parts, clarifying their success in the emulation of the digital aspect only:

I believe that the digital side of emulation is currently extremely close to correct, though there may be hitherto undiscovered interactions which nobody is aware of, and which may therefore be incorrectly modelled as well. [...]The emulation of the analog side is arguably imperfect. What we have is something that sounds alright for the vast majority of the music, and we can reproduce a wide range of chip types by adjusting some of the electrical parameters of the simulation. (HVSC representative personal e-mail communication, December 2013)

Certain chipmusicians such as Janne identify their music-making practices as ‘fakebit’, to clarify the gear they use. In the chipscene there is not a community of fakebit musicians who adhere to this music-making ideology specifically, arguing against chipmusic. However, certain chipmusicians see fakebit as a conceptual threat and categorise as a fakebit musician whoever does not use the original hardware. One passively becomes a fakebit musician in the sense that s/he has not intentionally identified as such, rather, the categorisation is external, i.e. by other chipmusicians who attempt to protect their territory. Fakebit musicians identify as chipmusicians who use fakebit chipmusic-making methods; they do not see a genre division between fakebit and chipmusic. Rather, they recognise fakebit tools as different means to compose chiptunes.

In the following section, I outline the interplay of discourses of authenticity regarding fakebit in the chipscene.

8.4 Tradition bearers or revolutionaries? Discursive patterns of authenticity.

In October 2011 while I was conducting digital fieldwork, I had a conversation with Elias, a chipmusic event organiser I had met through Error Code, considering the status of chipmusic in Europe at the time.¹⁹⁴ Elias was one of the first people I met in the Greek chipscene, and my impression was that he had a very good understanding of chipmusic, as he had been involved in the chipscene since the 1990s. He started primarily as a collector of early home computers and videogame consoles. He experimented with coding and music-making in the 1990s, and during the 2000s, Elias decided to establish a festival featuring retro computers, with the additional aim of introducing chipmusic to the Athenian audience. This is how ‘Error Code’ started.

Elias was passionate about retro computing. As an informant, he offered me great insight into the Greek demoscene and chipscene, and generally, geek culture in Greece. One time, during our productive online discussion, I felt the urge to ask about fakebit. His response was immediately unenthusiastic and informed me that fakebit was one of the main reasons he decided to quit ‘the scene’.¹⁹⁵ As he explained, he felt that the chipscene was in constant decay since the popularisation of chipmusic in the early 2000s. At least for him, chipmusic had become a bricolage of commercialised retro sound elements, reminiscing video games. He stressed that chipmusicians who were responsible for this ideological decline aimed at attracting broader, uninformed audiences, which for him was problematic for chipmusic. As he put it:

The global chip/8-bit scene is disoriented today. Of course this is normal and expected since the scene grew in popularity. However, calling 8-bit or chipmusic any commercial crap that sounds retro or vaguely reminds you of the ‘80s or even videogames is silly and almost repulsive. [...] You can’t have chipmusic

¹⁹⁴ See chapter three regarding my pre-doctoral encounters with chipmusic at Error Code.

¹⁹⁵ Elias referred to the chipscene simply as ‘the scene’. All of my informants used the terms ‘chipscene’ and/or ‘scene’ when talking about their practices.

without the hardware. It's like playing Greek folk music without bouzouki. (Elias Sifakis email communication, 2011)¹⁹⁶

Elias brought the concept of 'tradition' into our discussion, although not worded it as such, presenting it as a core element of chipmusic practices. He drew upon two examples to highlight this in his narrative. Firstly, he underscored the significance of maintaining continuity in line with the precursor of the chipscene, the demoscene, thus abiding to its rules and values. Secondly, Elias addressed the prominence of specific musical instruments for chipmusic-making, which characterise and define chipmusic as genre.

In the first instance, Elias invoked puristic criteria that the first generation of chipmusicians communicated and negotiated through their performative practices. The first generation of chipmusicians consisted primarily of demosceners who incorporated technologically-led aesthetic criteria to their chipmusic-making practices. For this early period of chiptune history, technology clearly defined chipmusic aesthetics. Chipmusicians of this generation used primarily early home computers and videogame consoles – namely, 'original hardware platforms' – in their attempts to be as faithful as possible to the technologically-oriented values of the demoscene. For them, chipmusic materiality was entirely connected to the tangibility of media and the only intangible, yet significant, aspect of chipmusic was code, the immaterial representation of their preferred technology.

The first generation of chipmusicians, who were highly positioned in the social hierarchy of the chipscene, thus were in a powerful position to define authenticity in chipmusic, and considered fakebit to be inauthentic as it fails to comply with any of the

¹⁹⁶ The original quote was in Greek: «Η κατάσταση σήμερα στην παγκόσμια 'chip/8-bit' σκηνή έχει αποπροσανατολιστεί σε ακραίο βαθμό. Φυσικά αυτό είναι κάτι πολύ λογικό... και αναμενόμενο από τι στιγμή που η σκηνή άρχισε κάποια στιγμή να κερδίζει έδαφος... Ωστόσο δεν παύει να είναι ανόητο και να καταντάει σχεδόν εμετικό να βλέπεις να ονομάζουν 8it ή chipmusic κάθε εμπορική μαλακία που retro-φέρνει, θυμίζει 80s, θυμίζει videogames κλπ. [...] Δεν νοείται chip μουσική ή circuit bend μουσική χωρίς hardware. Είναι σαν να παίζεις λαϊκά χωρίς μπουζούκι».

requirements of traditional practices: fakebit is not composed with the aid of limited technology, and certainly, original computer platforms are not used at all.¹⁹⁷ As Tomczak argued, “‘authentic’ hardware plays an important role within the chiptune genre” (Tomczak 2008). For purists, fakebit does not offer the possibility to experiment and to work with technological challenges;¹⁹⁸ or to put it differently, modern computers are not challenging enough as has been elucidated in chapter five.

In that sense, then, fakebit presents a menace for chipmusic. By removing original hardware from music-making practices, chipmusicians appear powerless. For purists, when limitations are taken away, there is no purpose in making music. Looking deeper into the roots of the need for authenticity, I turned to Anders, who offered an unexpected perspective.

MP: What about chipmusic originality?

AC: Originality [...] I think that chipmusic always (since the 1980s) had this urge to be taken seriously by others. A ...minority complex, towards whatever field you want to be accepted in. I suppose for the chipscene this was either pop or dance music and the art world. Originality was also quite important in the demoscene, but also in pop culture in general. Make something new and fresh! For chipmusic I guess this became as big also as an anti-thesis to the whole nostalgia discussion. “OK so perhaps I use old stuff but I make something new, God dammit!”

MP: Why is the use of 8-bit technology so important?

AC: With 8-bit technology there are unquestionable qualities as well, which modern machines do not have. Control is one thing. The user has a sense of control, because the technology is simple and direct. It is easier to immerse into the tech [technology]. There are less options, so you actually grasp all the options, and you can also control them. There are not all these “layers of secrecy” (Kittler) that obscure the interaction between the bare metal, and the user. A user can control up 100% of the options that we know of. In a modern computer perhaps you can only control 10%, because it’s impossible to grasp all the features, or it’s illegal/very difficult, to get past all the bullshit :-) (Anders Carlsson interview, 2012)

Considering Anders’s narrative, modern digital technology, in fact, presents a strong challenge for chipmusicians. Gaining total control in modern computers is difficult and often illegal, as not all of their functions are open to manipulation, unlike early home computers.

¹⁹⁷ There are certain chipmusicians who argue that any technology is limited in a sense. This was articulated primarily by my key informant Anders Carlsson in our discussions.

¹⁹⁸ The limitations of technology were a driving force for electronic avant-garde musicians. As Born explained, IRCAM’s technologically-oriented projects in 1984 aimed at overcoming the limitations of computer music, and re-introducing analog technology attributes that had been abandoned (Born 1995:193).

Modern technology, then, takes the notion of power away from chipmusicians. Anders also touches upon a sensitive and important point: that perhaps, first generation chipmusicians are being defensive about their musical practices as a result of a minority complex, or the urge to be taken seriously.¹⁹⁹ In this sense, the chipmusic-making process is naturally reified, and the absence of appropriate tools of power, such as original platforms, is perceived by chipmusicians as trivialising creativity.

Certain chipmusic-related agents, such as event organisers and netlabel managers, also criticised fakebit. While I was in Paris, I was interested to understand criteria as well as the music evaluation process when accepting and releasing chipmusic albums on netlabels run by people who share first generation concepts on authenticity. A certain netlabel representative told me he released anything that he found pleasant (netlabel representative interview, 2011). In that particular context I was told that this netlabel released anything that is ‘good’ chipmusic, and as the representative explained, ‘good’ means any chiptunes composed on the original computers only and not on soundchip emulators and modern computers.

Returning to the second point that Elias made in relation to traditional practices in chipmusic-making: in order to illustrate his perspective on tradition and musical genre formation, Elias attempted to help me familiarise with his way of looking at things. In doing so, he compared chipmusic to Greek folk music, an example he felt I would sympathise with as a Greek person. Folk music in Greece is considered to be particularly connected with one musical instrument, which is central to its creation, the stringed-instrument bouzouki (Pennanen 1997, Kallimopoulou 2009). Elias concluded that it is impossible to conceptualise

¹⁹⁹ Pasdzierny also argues that second generation chipmusicians attempted to establish Game Boy as a musical instrument rather than a handheld toy (Pasdzierny 2012:182).

chipmusic without the actual hardware; for him, this would be similar to attempting to perform Greek folk music without traditional musical instruments.

Although this argument appears to be strong and cohesive, it also demonstrates the stiffness of the concept of tradition in chipmusic practices. Hobsbawm and Ranger defined tradition as a set of practices encompassed by rules and rituals, which instil certain values and norms by repetition, aiming at expressing continuity with the past (Hobsbawm and Ranger 1983:1). Middleton suggested that in folk music, tradition has active rather than romantic connotations. It is about a song's popular acceptance and its continuous, varied life in a group of people (Middleton 1990:133-34). For Middleton, solidarity and collective feelings are essential criteria for folk music and the continuation of tradition (ibid). This is also observed in chipmusic, with the particularity that chipmusicians of the first generation are the only tradition bearers, in the pure sense, maintaining continuity by abiding to social norms and values of demoscene practices.

Following Elias' thought-provoking arguments, I approached other chipmusicians in order to understand more about the discourse of authenticity in the chipscene, as well as the debate on fakebit. Janne clarified the musical aspect:

MP: Tell me about the so-called 'fakebit'.

JS: Is there any relevant musical difference between chipmusic and fakebit? If music is taken structurally, there is no difference. It's absurd to think of a music genre in terms of technical restrictions. "This is fake because it wasn't produced with the same superfluous restrictions that I choose every time I compose" and it's relatively easy to fake the restrictions. But then, why bother. [...] In the beginning, technical restrictions were the norm, because of the machinery the music was produced with. There was no way to choose anything outside the restrictions (if you wanted to make music with computers that is). Nobody called it chipmusic though. (Janne Suni synchronous chat discussion online, 2013)

Janne suggested that chipmusicians do not differentiate musical forms in fakebit. Rather, the problem is centrally situated in the method of music production. As he explained, at the beginning of the chipscene, technological constraints were employed as it was the only

option in composing computer-mediated music. In time, chipmusic practitioners developed the ways chipmusic is created. This viewpoint is shared by second and third generations of chipmusicians, who take upon a revolutionary role, thus enriching the traditional practices in chipmusic-making.²⁰⁰ Revolutionaries enhance their musical creations by appropriating and co-opting diverse elements. They bypass the challenges of modern technology, or even, adapt to them and find other creative channels to enhance creativity. As seen in previous chapters, cultural elements are prominent in certain chiptunes.²⁰¹ In addition, chipmusicians make visual and sonic references to videogames. In general, second and third generation chipmusicians embed diverse elements in their music based on their sociocultural experiences.

The last point Elias made in his narrative related to the popularisation of chipmusic. The interest of uninformed audiences in chipmusic had an impact on chipmusic practices.²⁰² As Elias argued, new audiences are “disoriented”, meaning that they tend to move away from chipmusic-related traditions, previously illustrated in this chapter. In this sense, the commercialisation of chipmusic is seen as a sell-out. This is to be expected in any musical genre that becomes mass-consumed.²⁰³ Considering that chipmusic primarily conduces to a prosumer culture, then the agency of its creators, who, post-2000s, originate from a larger pool of ideological backgrounds, has an effect on the discursive patterns in the chipscene. Thus, due to the inherent diversity of discourses in the chipscene, the divide between perspectives on music-making is not surprising.

²⁰⁰ Music history is rich with examples of revolutionaries who wanted to steer away from traditional practices. For example, Busoni was dissatisfied with the direction of traditional music and wanted to free music from its “hallowed traditions” (Holmes 2012:12).

²⁰¹ See the examples of Omodaka, Ultrasyd, and Obasilakis in chapter six).

²⁰² This has been extensively outlined in previous chapters of this thesis.

²⁰³ See further on commercialisation and sell-out in popular music in Ivey 1982.

From a rather positive perspective, Roger Cruz expressed that fakebit has broadened the audience of chipmusic, and as a result, chipmusic becomes more known as a genre and culture. As he illustrated, most people that are interested in fakebit come from video game communities such as OCRemix:

MP: Is OCRemix retro-oriented?

RC: Yeah, but it's just old soundtracks made into more modern music. That's not what chiptune is about, but we are getting a ton of people from that community, thanks to Chiptunes=Win and DJ Cutman, who came from there. As long as there's some chiptune involved, it's considered chiptune – doesn't matter if it's fake or not, the audience doesn't care either, but there's a preference for pure chip a lot more than mixed stuff. (Roger Cruz e-mail interview, 2013)

This dual perspective on fakebit poses a significant theoretical question: what are the boundaries of authenticity in chipmusic? As previously highlighted, the question of authenticity is primarily a concern expressed by the first generation of chipmusicians who adopt puristic aesthetic criteria. This particular sub-network draws the line between chipmusic and fakebit, where chipmusic represents authenticity and fakebit inauthenticity. For them, authenticity is central in the definition of chipmusic and consider that authenticity is related to the traditional practices that reflect demoscene aesthetics. Defining this boundary is particularly significant in the sense that if we were to accept all ways of composing chipmusic, then why not simply call it electronic music? Identifying their creations as 'chipmusic' based on their creative intentions is what differentiates them from other musical genres, i.e. videogame, electronic, or computer music.

On the other hand, chipmusicians who are open to fakebit music-making means in the context of chipmusic, this debate has no purpose. They do not share this antagonism and as my informants argued, they simply "don't care" if a chiptune is composed on original hardware or modern computers. Their aesthetical criteria are related to the musical output rather than the technology behind it. This is one of the main differences between the

chipscene generations: the fact that the creative process itself bears various meanings for purists and it becomes a way of performing one's musician identity to a (preferably) informed audience, i.e. other chipmusicians. For second and third generations though, authenticity does not bear similar meanings regarding their creativity insofar as one can use any means to compose chipmusic. In both cases, the issue is related to *being* a chipscene network member. In the first case, being is closely related to technologically-led ideology, and in the latter, being is linked to concepts that are not related to chipmusic authenticity, as for example, experimenting with other music-making tools.

While browsing chipmusic.org I read an interesting perspective on the authentic identity of chipmusic and fakebit. This argument was a response to a thread entitled “GOOD INNOVATIVE FA—“MODERN-DAW-BASED” CHIPMUSIC” (note the avoidance of writing “Fakebit” in the title by the original poster):

Secondly, the limitation with chipmusic doesn't lie with the software and hardware limitations per-se. The most striking limitation of chiptune, and the one that gives it its identity in my view, is timbre. When you write chiptune, “fake” and “pure” alike, you restrict yourself to basic waveforms – usually square, triangle, noise, maybe others [...]. That is the main limitation in my eyes. (Chipmusic.org member, November 2013.)

This argument articulated that chipmusic authenticity, at least for the second and third generations, is connected to timbre, a musical property that distinguishes chipmusic from other musics.²⁰⁴ From one point of view, the Chipmusic.org member suggests that authenticity is still understood as an extra-musical characteristic and can be achieved by applying technological limitations on original or modern platforms (e.g. the use of basic waveforms). However, this perspective falsely perceives authenticity as an inherent characteristic of chiptune sound, considering any musical piece that *sounds* like chipmusic, as chipmusic. This is rather problematic as it lacks the cultural context of chipmusic and

²⁰⁴ The specific chipmusician composed fakebit, using various soundchip emulators on modern computers.

does not take into consideration the artist's intention.²⁰⁵ On the basis of chipmusic timbre, one could define all videogame music as chipmusic, but this would be a completely flawed definition.

Judging from an overview of discussions on online chipmusic communities, it seems that the debate on fakebit and chipmusic authenticity slowly becomes a phenomenon belonging in the past. One of my informants suggested (Jose Torres e-mail interview, 2013) that the fakebit debate ended with MisfitChris's song "Fake bit much" (2010). The lyrics describe the process of creating fakebit:

Activating fakebit mode
Loading phony square synthesis
Loading stereotypical hipster house bass line
Loading terrible SID Chip Sound font
Fakebit initiated
All systems go
Fake bit mode
What are you doing to me?
CPR

In "Fake bit much", the creative process of the song is described through a series of inauthentic applications ("phony square synthesis", "stereotypical hipster house bass line", "terrible SID chip sound font"). However, the song also conveys that fakebit can be seen as a way of reviving, or even, refreshing chipmusic, by means of Cardiopulmonary resuscitation (CPR).

There is one last argument I would like to bring to the discussion on authenticity in chipmusic, related to the significance of being connected in the chipscene.²⁰⁶ The diverse discursive patterns on authenticity create an ideological rift in the chipscene. It is worth

²⁰⁵ Chipmusicians customary clarify their intentions in online communities, and more specifically, in discussion threads that they create to promote their releases. In these posts, other chipmusicians ask about the technical parts of their creation. Creators, then, discuss their views on chipmusic-making. Some of these discussions lead to chipscene drama, should chipmusicians' opinions clash.

²⁰⁶ See also chapter six.

bearing in mind here that, according to Bourdieu, “every sort of taste [...] unites and separates” (Bourdieu 1984:56). On one level, chipmusicians are united according to their ideology on authenticity, but this suggests there are two opposing camps: pro and against fakebit. Such a separation fragments the chipscene network, and ultimately, undermines its connectedness as a network. In this respect, chipmusicians drift away from discussions on authenticity deliberately, in the same manner they avoid arguing over gender and other topics that may cause discord.²⁰⁷ This is not prominent in the chipscene, but certainly marks a change in practices.

In this section, I looked at the discursive patterns of authenticity from an empirical perspective based on my informants’ discourse. I now turn to the theory related to genre as outlined in the second section of this chapter to analyse the dynamic nature of genre in chipmusic.

8.5 Genre dynamics in chipmusic

In looking at the empirical conclusions from the examination of chipmusic as genre in this chapter, one can observe that there is asymmetry among discourses regarding fakebit and authenticity. From a Bourdieuan perspective, there can be two opposing ‘camps’ with chipmusicians differentiating themselves from fakebit musicians, thus positioning themselves in the field of chipmusic. Furthermore, in the discourse of tradition bearers, chipmusic authenticity defines the set of rules regarding chipmusic-making. In other cases, fakebit is identified as a legitimate chipmusic-making process situated within the broader concept of chipmusic creativity. Non-conformity is also observed, with fakebit musicians

²⁰⁷ I particularly observed this denial to discuss authenticity and fakebit among younger chipmusicians, who were eager to dismiss my disbelief reassuring me that such debates belong to the past. However, this is a recent phenomenon that requires further research that goes beyond this thesis.

aiming at becoming revolutionaries. In addition, to a certain extent there is some intentional abstinence from debates regarding genre in chipmusic.

The dynamic attribute of genre in chipmusic is not surprising. Middleton argued for the constant evolution of popular music, which is “[...] never still – it is always in movement” (Middleton 1990:7). To look into this dynamic aspect of chipmusic, I examine chipmusic as genre in relation to: a) the genealogy of chipmusic-related terminology, b) cosmopolitanism, and c) hybridity.

The genealogy of terminology in the historical dimensions of chipmusic varies radically. At the time of the demoscene, Amiga music was called “soundtracker music”, as it was composed on Soundtracker, or “mod music”, which referred to the output file type (.mod) (Lysloff 2003, Carlsson 2010:36). The term “chiptune” at first referred to Amiga music in the 1990s (Carlsson e-mail communication, 2012). Thus, 1980s chiptunes were named as such in retrospect, because at the time of their creation other terminology was used. In the late 1990s, chipmusicians adopted “micromusic” after the emergence of the homonymous online chipmusic community. It referred to music composed on microcomputers, and as a self-explanatory term it was often employed to describe chipmusic. In later years, the use of “micromusic” was observed mostly among Italian and French-speaking audiences: “micromusic” becomes appropriated in Italian language as “micromusica”, and among Francophones, it is used for habitual reasons, considering that Micromusic.net was based in Switzerland and was predominantly embraced by neighbouring countries – at least at its early phase.

Furthermore, certain chipmusicians use the term “8-bit” to define music composed on 8-bit platforms. I found that chipmusicians used the specific term when explaining their

music to outsiders, considering they may have heard of 8-bit platforms or art. Certainly, this presupposes some knowledge of the 8-bit movement. I found that when the outsider did not have this prior knowledge, then chipmusicians would simply describe chipmusic as a kind of “videogame music”. As demoscener and chipmusician gwEm put it “[y]ou can make any type of music; as long as it has 8-bit sounds, it can be 8-bit (gwEm 2011, *Europe in 8 bits* trailer). It is worth mentioning that “8-bit” became a ‘glocal’ term that adjusted to various different linguistic contexts. For example, while it is written “8-bit” everywhere, in Italian it is called “otto-bit”, in French “huit-bit”, in German “acht-bit”, in English “eight-bit”, in Spanish “ocho-bit”, and in Greek “οχτάμπιτο” (*ochtabito*).

The meaning of “micromusic” and “8-bit” has significantly changed in the history of chipmusic. Initially, both terms referred strictly to the technology that was used; one composed chipmusic on microcomputers, i.e. 8-bit computers and videogame consoles. However, as chipmusic evolved, other means of music-making were added to the chipmusic toolkit.

Chipmusicians also find that the terms “chipmusic” and “chip music” evoke the meaning that the particular kind of music is composed by (sound) chips. This term was embraced after the launch of Chipmusic.org. Torres restated that “[t]he music was for many years and still is called, by many, chiptunes. The lexicon of chipmusic has only been adopted and embraced recently” (Torres e-mail communication, 2013). In fact, “chiptune(s)” and “chipmusic” are currently used interchangeably, and that does not seem to be problematic. These terms are also preferred by chipmusic researchers. I also find that “chipmusic” is an appropriate term to describe music and its cultural context, whereas “chiptunes” is more representative of the musical piece.

Often, the term “videogame music” is falsely used to describe chipmusic. This comes from the perspective of an uninformed audience that listens to chiptunes and associates them to videogame soundtracks one may be familiar with. This is characteristically recorded at a video depicting a street performance by Sabrepulse in 2010 in New York, during which a passerby enthusiastically expressed “It’s videogame music!”.²⁰⁸ The video was published on YouTube and it became a common in-joke among chipmusicians. “Videogame music” is not embraced by chipmusicians when it comes to defining their music. However, some chipmusic promoters employ it as a marketing tool in order to attract non-initiated audiences (interview with anonymous promoter, 2012).

Secondly, chipmusic due to its geographical dispersion and connectedness across a number of countries, has an inherent cosmopolitan character. In this perspective, chipmusic resembles Japanoise. Novak presented Japanoise simultaneously as a genre and anti-genre, suggesting that it conjoins two contrasting discourses emerging from the perspectives of music industry and marginalised music communities (Novak 2006). Moreover, he explained that Japanoise can be simultaneously categorised as “local popular music” (in the Japanese geographical context) and “universal experimental music” (Novak 2006:36). Lastly, Novak underlined the importance of the diverse negotiated meanings that emerge from the particular genre, centring on the ideology of some Noise musicians who oppose the commodification of music by the music industry and compose music that is allegedly ‘unclassified’. Similar observations could also be made in chipmusic. Chipmusic can be popular or marginal across different time periods and places. For example, during the 2000s chipmusic was very popular in Indonesia, as it was thought to be a powerful tool to break through to the international music market. In contrast, in South Africa only one chipmusician was active during the same period.

²⁰⁸ *8-bit alliance*, uploaded 5 March 2010 by user J. Bulluck <<https://www.youtube.com/watch?v=h37T9jvF2iI>>, accessed 29/9/2014.

This manifested cosmopolitanism gives way to musical hybridity that extends from chipmusic to local musical cultures and the transformation of social worlds within these – as in the case of the relatively small chipscene in Malaysia, where local chipmusicians found a place of collective expression through their passion for digital music and have structured a local chipmusic world that has affected social aspects of their lives. However, there are other kinds of hybridity in chipmusic, as it has been demonstrated in chapter five. The musematic repetition in chipmusic, to recall Middleton’s (1990) term, is a primary characteristic of chipmusic as genre. Using blocks, arpeggios, and loops, that are the core of musematic repetition, chipmusicians can compose chiptunes in various musical styles that share some aesthetic properties of broader musical genres, such as heavy metal, EDM, disco, and reggae, to name a few. However, the chiptune sound – the rawness and bleepiness as described in chapter five – is what places them under the ‘chipmusic’ taxonomy from the perspective of chipmusicians. Chiptunes, though, can belong at the same time in more than one genres in this way, echoing Derrida’s (1980) conceptualisation of genre. Chipmusicians such as Meneo and Henry Homesweet have transcended to other musical cultures (mainstream pop and tech house respectively), in which they compose music using elements from chiptune sound, perform, and develop a wider fanbase, outside of chipmusic worlds. This is yet another dimension of the aestheticisation process in chipmusic.

Summary

Chapter eight concludes the third and last part of this thesis that overviewed chipmusic practice. In this chapter I examined differentiation in chipmusic as negotiated through various discourses on authenticity and the ways that these discourses inform the ‘rules’ that define musical genre in the chipscene. I provided two conceptual sections on authenticity and genre theory, arguing that genre in chipmusic is dynamic and it is shaped

by chipmusicians' discourse. Furthermore, the two ethnographic sections that followed aimed at supporting this argument with empirical data. The end section was an analytical discussion regarding the dynamic nature of genre in chipmusic.

Conclusions

This thesis, entitled *Networked Creativity: Ethnographic Perspectives on Chipmusic*, has examined creativity as manifested in an online and transnational network of musicians, the chipscene. Creativity in chipmusic is dispersed across various activities that are labelled as creative: chipmusic-making, technology-hacking practices that underpin the music, digital cultural practices such as use of social media, online releases, crowdsourcing, staged and screened performances, and any other activity related to chipmusic. This theoretical viewpoint has emerged from ethnographic perspectives of chipmusicians that regard the networked aspect of chipmusic practices as a central ideology in chipmusic cosmology.

The methodology of the thesis promotes an interdisciplinary understanding and entails theorisation based on theories from ethnomusicology, anthropology, and to a certain extent, sociology, intertwined with a similarly interdisciplinary research framework that encompasses ethnography, the empirical method of anthropology, and social network analysis (SNA), a methodological and analytical tool of relational sociology. From a theoretical and conceptual viewpoint, the theory of networked creativity utilises the theory of ‘relayed creativity’ as defined by Born (2005), which entails processes of decomposition, composition, and re-composition in music by various creative agents (Born 2005:26, see also chapter two of this thesis) in a relational context where social relations among human and non-human agents are taken into account. In addition to this, networked creativity is based on ethnomusicological, anthropological, and sociological theories that underpin the cosmopolitan, dynamic, and multi-faceted aspect of the creative process.

The developed research framework encompassed digital and physical, multi-sited fieldwork, internet-based information retrieval methods that utilised a set of research tools as described in chapter three, and a visualisation and analysis model based on social network

analysis that utilised both ethnographic and computational data. The innovation of this developed model lies in its capacity to visualise the aforementioned data and to interpret them from two viewpoints (ethnography and SNA) supplementary to each other that enhance the interpretative dimensions. As demonstrated in chapter four, this framework has produced findings that could not be realised individually within each analytical direction.

The analytical framework of this thesis utilises theories central to the study of creativity as these have been outlined by previous research in ethnomusicology, popular music, anthropology, and sociology of music. More specifically, this thesis addresses discursive patterns regarding chipmusic ideology (chapters four and eight) that shape the aesthetic dimensions of chipmusic practices (chapter five), performance (chapter six), and have legal ramifications related to copyright (chapter seven). Furthermore, the emergent themes in this thesis relate to the central position of technology at every layer of the act of creation, the significance of locality in a networked society, the multi-modal characteristic of communication, the dynamic character of musical genre, the multiple levels of musical hybridity, and authenticity as differentiation.

In chipmusic worlds creativity is shared. Following the creation of a chiptune, chipmusicians upload it on one of the online chipmusic communities, which were analysed in chapter four, and engage in discussions with other chipmusicians regarding the stages of composition, as well the ways the original composer attempted to overcome the technological constraints of the used platforms. Chipmusicians release their chiptunes for free through netlabels, and more recently, chipmusicians have started selling their music through online music services such as Bandcamp. As demonstrated in chapter four, the chipscene is sustained by means of alternative capitalism, such as crowdsourcing. Chipmusicians do not engage with the mainstream music industry, i.e. corporate music

labels and promoters. As a prosumer culture, the chipscene is self-sustained. Considering that the chipscene network is self-supported financially, it would be interesting to see if this can also happen in other networks of musicians.

Certainly, the practice of free circulation of chiptunes has changed since the early days of the chipscene due to various cases of music plagiarism – some of which resulted in litigation – that were considered in chapter seven. The issue of music plagiarism overcasts the creative process in the sense that chiptunes saved in open file formats, such as .mod and .sid, function as distributed objects, to utilise a Gellian term adapted by Born, and can be edited and manipulated by anyone that downloads them. As demonstrated in chapter seven, copyright law cannot adequately protect such examples of networked musics, due to the complexity of applying it internationally. Copyright law differs from country to country and in the case of litigation, lawyers have to master legislation across different countries. However, not all chipmusic plagiarism cases lead to litigation, for this is a costly process and the financial gain is minimal. With the use of .mp3 files in chipmusic, committing music plagiarism has become more difficult as copying can be achieved only through sampling.

Considering that the chipscene is a transnational network of musicians, chipmusic composing practices are influenced by the given cultural context in which they are found. For example, as discussed in chapter six, certain chipmusicians integrate national elements in their chiptunes, as in the cases of Ultrasyd, who has used samples from the French national anthem, and Obasilakis, who composed a chiptune based on modal construction borrowed from Greek folk music. Additionally, as demonstrated in the same chapter, performative aspects of music also differ from place to place. In Indonesia, Malaysia, and Colombia, street performances have flourished – and this is related to the ways people tend to experience

musical performance in the specific countries. In other countries, however, staged performances in clubs or bars are preferred.

One of the interesting findings regarding performance is the emergence of screened performances that occur online. As demonstrated in chapter six, certain chipmusic performances are streamed online and can be virtually attended. During these screened performances, performers and audience are in different geographical locations. Thus, the proximity of performance is enabled by the internet, and this can have several ramifications in the ways we experience musical performance in the future. For example, with the development of gear, such as Oculus Rift, which can help one immerse in a three-dimensional digital world, the ritual of attending musical performances will be significantly different. One will no longer need to go to a venue; rather, one will simply log online, use the relevant gear, and virtually go to a concert without leaving one's house.

A second interesting finding relates to the dynamics of genre in chipmusic. As explained in chapter five, the central characteristics of chiptune sound are rawness, bleepiness, and musematic repetition – to use Middleton's term – in the form of blocks of sound, arpeggios, and loops (see chapter five). These traits are characteristics of chiptunes. However, chiptunes vary in musical styles sharing certain aesthetic attributes of other musical genres (heavy metal and reggae, for example). Firstly, then, chiptunes can be categorised under various musical genres at the same time. And secondly, chipmusicians can be active in multiple musical cultures, be it related to chipmusic, pop music, heavy metal, reggae, and so on.

In the timespan during which I conducted fieldwork, I found that there was a developing tendency towards the connectivity discourse. As I have already discussed in

chapters four, six, seven, and eight of this thesis, which deal with the social aspects of chipmusic, one of my findings was the need for connectedness of the chipscene network that was expressed by chipmusicians. Chipmusicians drifted away deliberately from discussions about age, gender, race, and sexuality that could have caused internal conflict and destabilisation to the connectedness of the network.

My work contributes to the literature on creativity and, more particularly, the relationship between technology and musical practice as examined in the fields of ethnomusicology and anthropology of music (see for example, Born 1995, Wallach 2008, Wood 2008, Cheng 2012, Farrugia 2012, and Novak 2013). It also contributes to the social network approach that anthropologists have incorporated since the beginning of the twentieth century (Malinowski 1922, Boissevain 1979) and that sociologists and internet researchers continued (Latour 2005, boyd 2007, Papacharissi 2010, Newman 2011, Kadushin 2011, Rainie and Wellman 2012). This research also extends the area of study related to musicians' networks (Brinner 2009). Finally, this was the first doctoral thesis to be written on chipmusic and it contributes to the chipmusic literature (Carlsson 2008a, Pasdzierny 2012, and Nova 2014). Furthermore, I see this thesis in the sub-discipline of digital ethnomusicology, a field that is still relatively new.

From the perspective of methodology, my primary contribution is the mixed methods research framework I presented in chapter three. The proposed research method is based on ethnographic and computational information, and can be applied to any social network. As demonstrated in chapter four, on one level, the visualisation of an online and transnational collective can offer significant insight into mapping both digital and physical places, disclosing how the internet can support continuous interactions on a daily basis between

countries that are geographically dispersed. On the other hand, a mixed methods approach may reveal areas that are not accessible otherwise.

The chipscene visualisation demonstrates how the internet renders the distances in the physical world less significant for the purposes of a music network. With the aid of the visualisation one can monitor a network's activity by examining quantitative and qualitative data. As the chipscene is a dynamic community, this visualisation is subject to constant change, and this is one of the most significant limitations of this method. For example, if activity in the Netherlands intensifies, e.g. by producing chipmusic releases involving chipmusicians from a number of countries, the Netherlands could become the largest node. Additionally, other factors, such as migration, will influence the network, by bridging relationships between more countries. This visualisation is also limited to 32 countries. In future years, more countries are likely to be included (or perhaps removed), provided that there is enough chipmusic activity in one region. For example, if chipmusic develops in Africa, this would also have a significant impact on the chipscene network, as well as on the ways in which chipmusic will circulate.

In doing fieldwork, I discovered that the actual experience is different than that of our precursors'. I do not only refer to ways of conducting fieldwork, such as recording interviews, participant observation and so on. These methods have always been dynamic as it has already been outlined in ethnomusicological literature (for example, Barz and Cooley 2008). However, in the not so distant past, leaving the field pragmatically meant *leaving* the field: a disruption in the relationship between the ethnographer and his/her field informants. With the development and broader use of the internet as well as social media, leaving the field is almost impossible considering that informants can stay in touch with the fieldworker even after his/her departure from the field.

Furthermore, the field of ethnomusicology itself has changed. Ethnomusicologists are more concerned with ethical considerations, as I showed in chapter three, and the emergence of the internet as a research field and tool has extended the need to discuss more issues such as informed consent, anonymity, and openness. Additionally, at the time of writing this thesis, the discussion on the status of ethnomusicology and anthropology in the UK is prominently expressed by the Royal Anthropological Institute and the British Forum for Ethnomusicology. The findings of my research contribute to both fields, and perhaps similar research is needed to refresh the connection between the two disciplines.

This thesis was needed for various reasons. Firstly, it addressed a gap in chipmusic literature, a relatively new academic field of study. Secondly, as a study of creativity in a networked society, it offers significant insight into creative practices and discourses. Thirdly, this thesis contributes to academic debates of aesthetics and genre that have been neglected. Furthermore, the development of the mixed methods approach can be utilised in other studies.

At this point, I would like to discuss the limitations of this thesis. For me the primary limitation is related to the nature of ethnography. This thesis examines chipmusic and the chipscene network at a particular time, so it is very much a dynamic study. Once this thesis is written – not to mention, published – inevitably, it will have already become history. Secondly, having different computational data from different years would significantly alter the results. Considering the dynamic character of the chipscene, I assume that my results regarding the visualisation of the chipscene network are already outdated. In addition, I have wondered a few times what would happen if I ended up going to New York for fieldwork, as I discussed in chapter three. It is not impossible that I would have a different story to tell.

However, limitations to research are not simply a result of sample, location or method. Limitations are also about us, our capacities, blank and blind spots, which in certain cases can be altered.

While undertaking this doctoral project, I developed a number of skills – I learnt Italian, a new foreign language for me, immersed in statistical theories in order to develop my visualisation, and I also enhanced my computational skills, not only by means of chipmusic-making, but also, to visualise the chipscene network. In addition, I found that my analytical thinking has significantly changed, and this has had a positive impact on my writings and presentations.

Additionally, my study may give rise to further research which could observe and analyse any changes in the chipscene network considering the rapid development of the chipscene. Moreover, chipmusic researchers can focus in on detail on examples of chipmusic performance, such as street performances, and look into them more than what could be done in the context of this thesis. As I have outlined several interesting interpretative points regarding the meaning of chipmusic cross-culturally (see, for example, chapter four with regards to Indonesia), one could focus on the status of chipmusic in one region and examine the general popular or electronic music scene in that particular country. Furthermore, the social network perspective can be applied in other networks of musicians, as for example, in diasporic networks of musicians-performers.

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Henry Homesweet (2014) Big mono [online]

<<https://soundcloud.com/henryhomesweet/henry-homesweet-big-mono>> last accessed 9/1/15

Sabrepulse feat. Knife City (2011) First crush [online]

<https://www.youtube.com/watch?v=_or8Ox5nzc4> accessed 9/1/15

Chiptune Street performance – Bogota Colombia (2014) [YouTube video]

<<https://www.youtube.com/watch?v=9jVUfHDgKk8>>, accessed 22/10/14

Omodaka (2009) Plum song [YouTube video]

<<https://www.youtube.com/watch?v=ozdGYpcdVJk>> accessed 9/1/15

Ultrasyd (2013) Un croissant s'il vous plait [online]

<<https://www.youtube.com/watch?v=rjRLpwAe8Kk>> accessed 9/1/15

Chapter 7

Tempest (2000) Acidjazzed evening [online]

<<https://www.youtube.com/watch?v=amXNbaRtLpQ>> accessed 9/1/15

Various artists “Kind of Bloop” (2009) [online] <<http://kindofbloop.com/>> accessed 9/1/15

Chapter 8

MisfitChris (201) Fake bit much [online]

<<https://www.youtube.com/watch?v=j4vxyF89hyI>> accessed 9/1/15

Appendix

1. Online Resources for Chipmusic

1.1 Online communities

8bitcollective: www.8bc.org

Micromusic: www.micromusic.net

µCollective: www.ucollective.org

noisechannel: www.noisechannel.org

chipmusic.org: www.chipmusic.org

1.2 Netlabels

Lowtoy (Spain): www.lowtoy.com

Pterodactyl Squad (England): www.ptesquad.com

pxl-bot (England): www.pxl-bot.com

Calmdownkidder (England): www.calmdownkidder.com/records

Kittenrock (England): www.kittenrock.co.uk

Coucou Netlabel (Italy): www.coucounetlabel.com

Chipanzee (São Paulo, Brazil): www.chippanze.org

Half Lesbian (Germany/Greece): www.halflesbian.org

Chip-Con international (USA) : <http://chip-con.org>

Noisechannel, (USA): www.noisechannel.org

8bitpeoples (USA): www.8bitpeoples.com

Piko Piko Detroit (USA): www.pikopikodetroit.com

Da! Heard it Records (France): www.daheardit-records.net

Darling Dada (France): www.darlingdada.com

Dataglitch (France): www.dataglitch.org

Jahtari (Berlin, Germany): www.jahtari.org

Micromusic (Basel-Zurich, Switzerland): www.micromusic.net

Bleepstreet (Sweden/Germany): www.bleepstreet.com

Data Airlines (Sweden): www.dataairlines.com

Ubiktune (Russia): www.ubiktune.com

2. Maps

2.1 Chiptunes=Win! Chipartists map

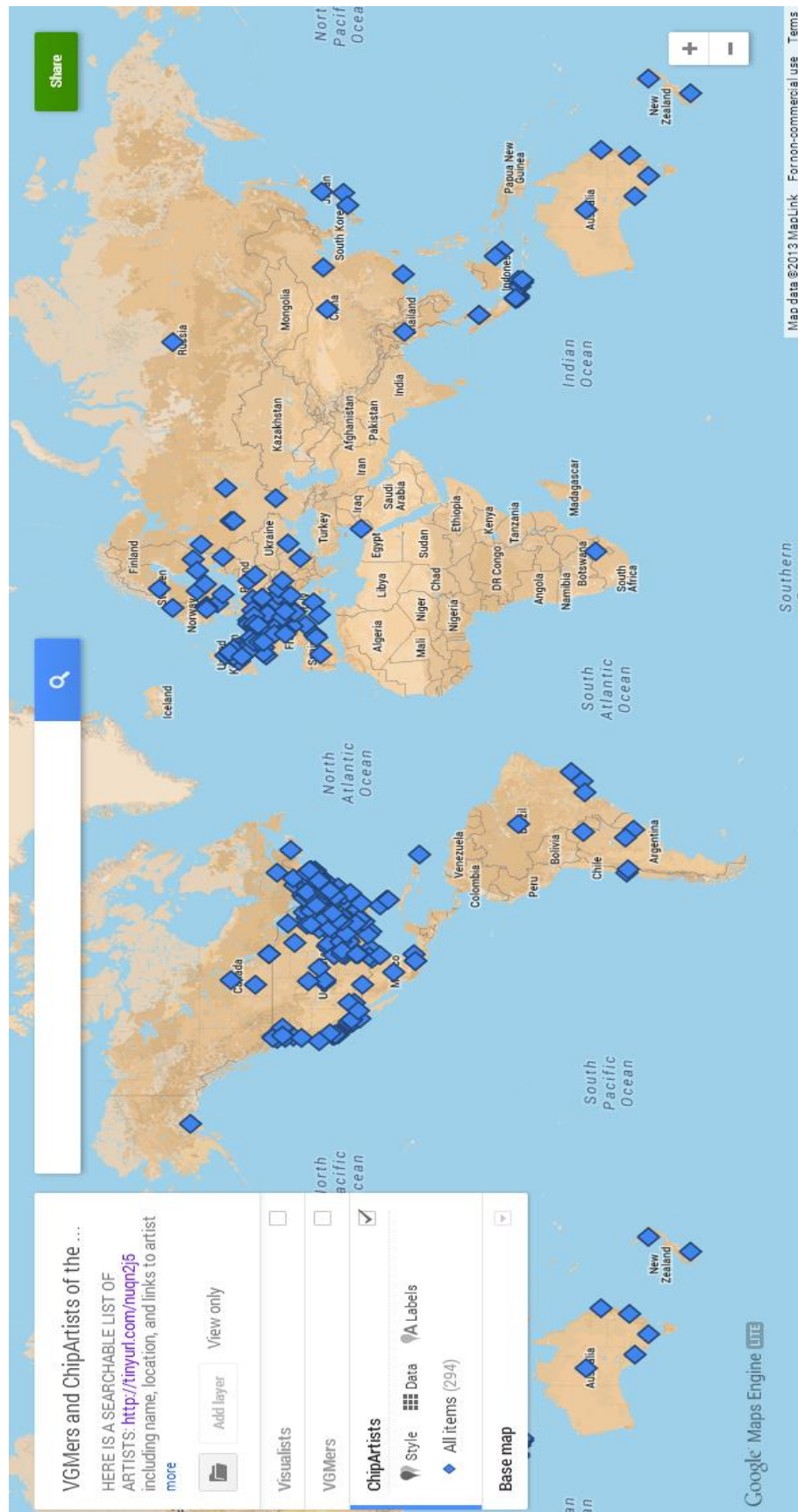


Image A.1. Chiptunes=Win map of chipartists (31/10/13).

2.2 Comparison of Micromaps (micromusic.net)

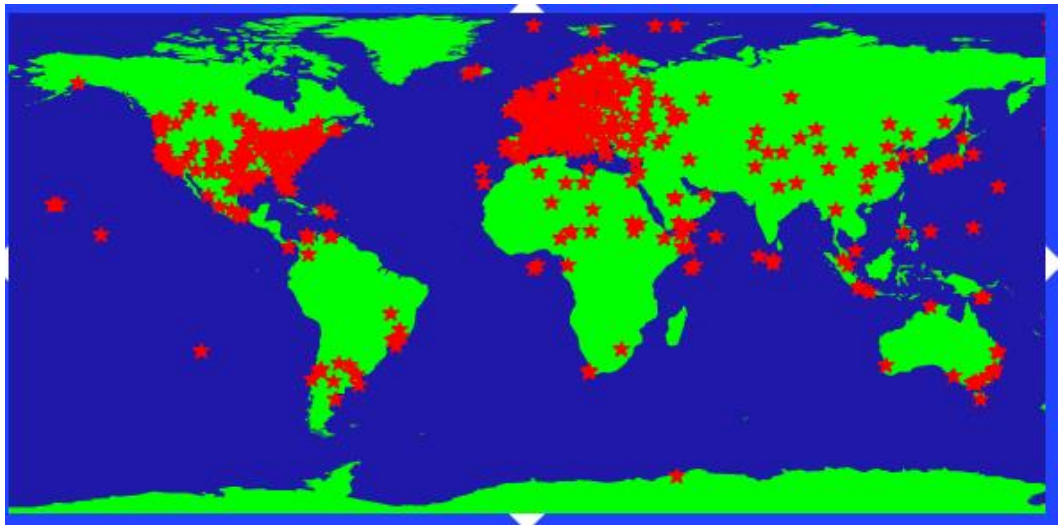


Image A.2. Micromap: 6/6/12.

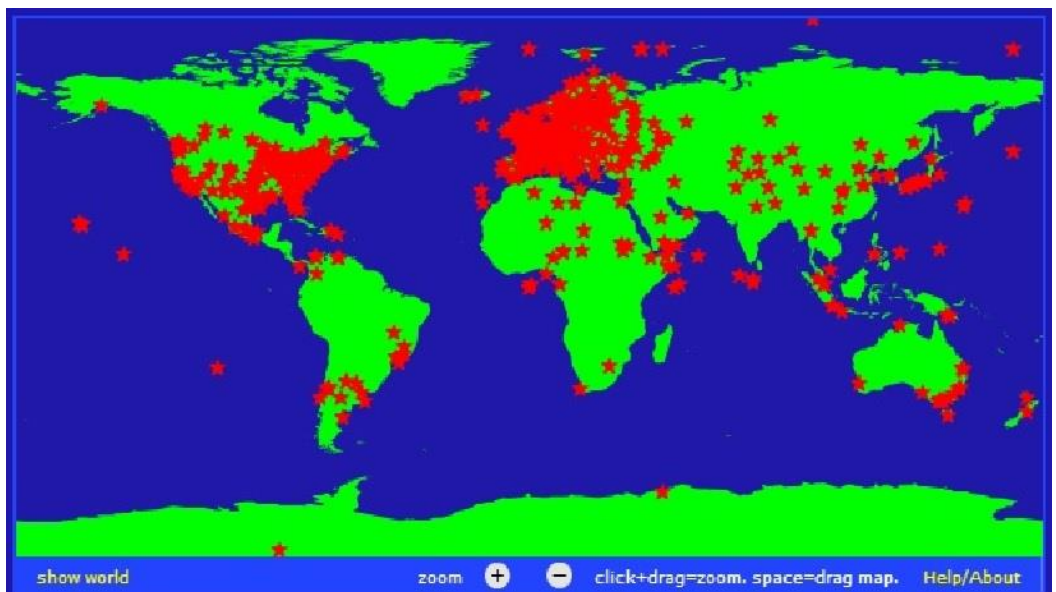


Image A.3. Micromap: 9/7/13.

Source: www.micromusic.net (micromaps section)

3. Graphs

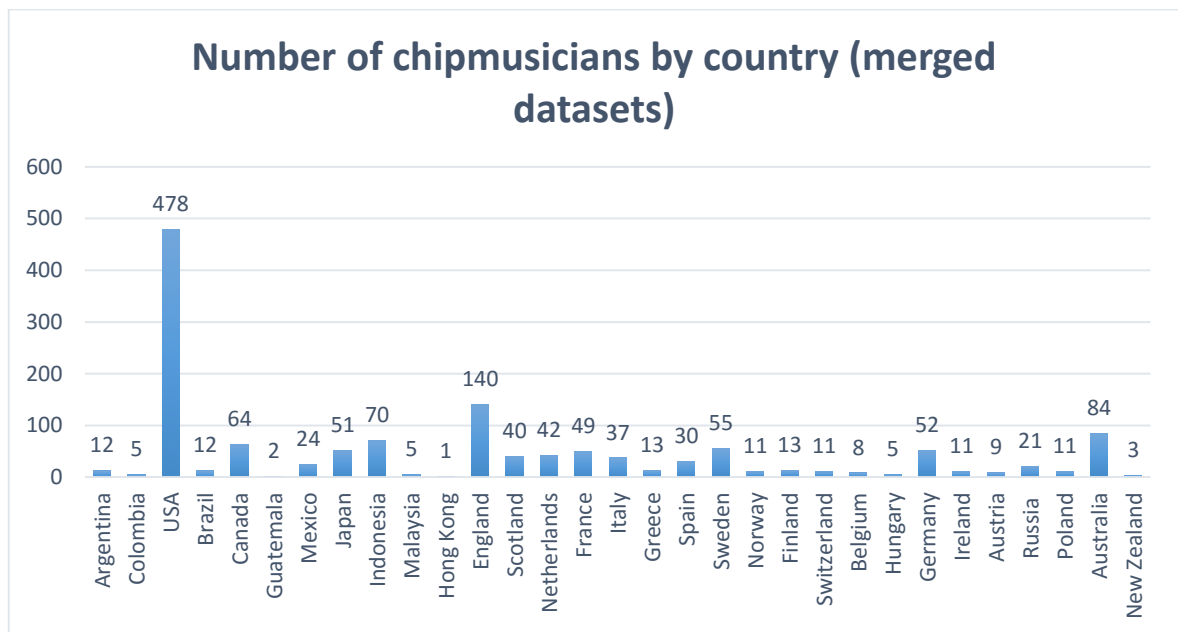


Figure A.1. Number of chipmusicians by country (merged datasets)

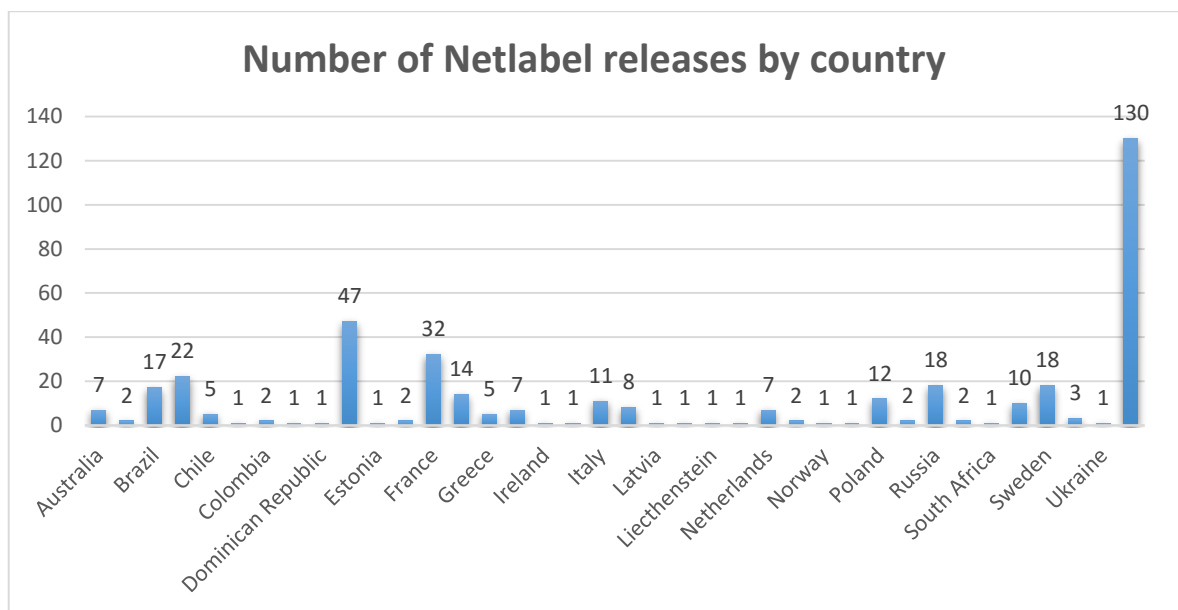


Figure A.2. Number of netlabel releases by country

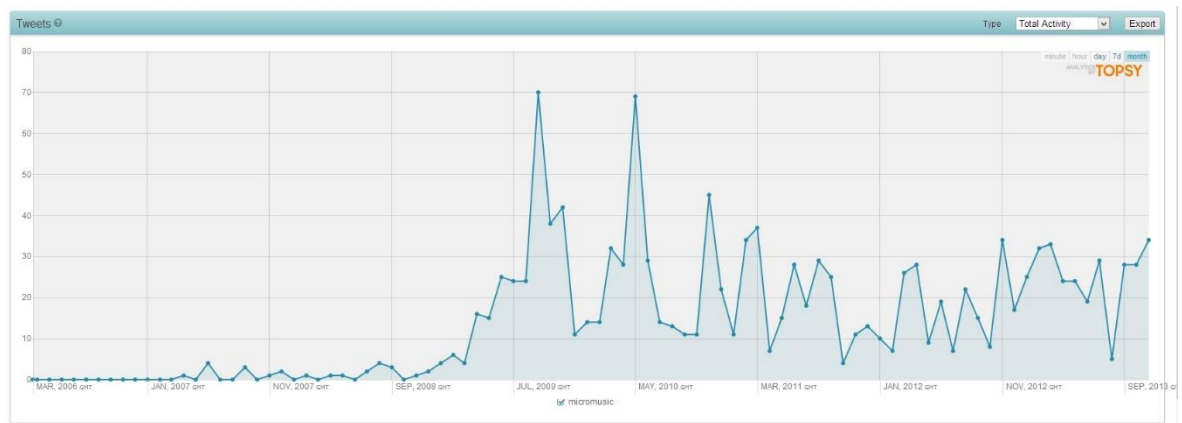


Figure A.3. Activity on Twitter using search keyword “micromusic”. Peak: 2009.

4. Print screens

4.1 Online events

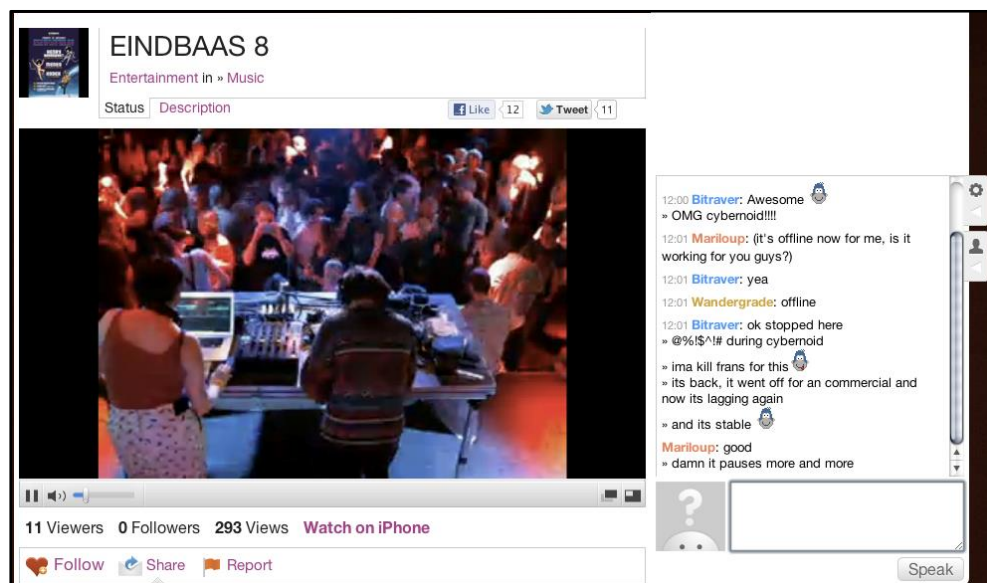


Image A.4. Eindbaas 8 (13/1/2012) streamed on Justin.tv.

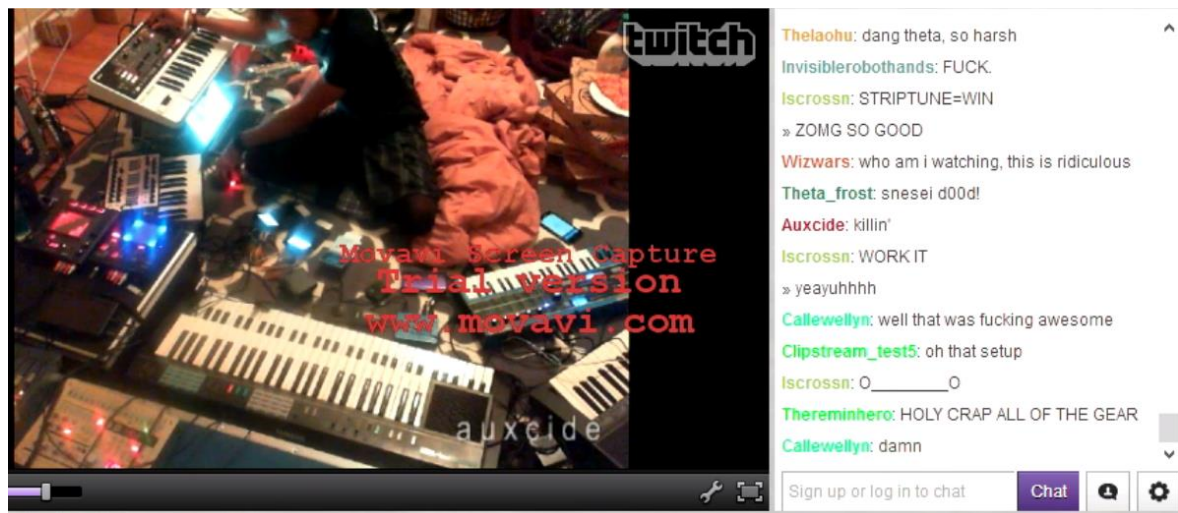


Image A.5. Auxcide performance at Clipstream XII and the Deep Dish of Doom (Dec. 13).

4.2 e-Fieldnotes sample

e-Fieldnotes

Electronic Fieldnotes of an ethnomusicologist

About

Search content

Search

Daria Leanne , 8bc and homophobia

Conversation started 8 November 2013 08/11/2013 15:41
Christabel Etheriel Hi Daria, My name is Marilou and I'm writing my thesis on chiptunes. I've just see your post on 'chiptuners against homophobia' where you mentioned that homophobia was becoming

June 6, 2014 / Leave a comment

Japanese chiptunes Kyoko's help

Conversation started 11 February 11/02/2014 04:13 Christabel Etheriel Kyoko!!! How are you? Thanks for offering to help me! Basically, everything I'm trying to figure out is NOT in Japanese characters, which makes it really difficult to find original

June 6, 2014 / Leave a comment

Terada Soichi Omodaka

Conversation started 12 February 12/02/2014 02:09 Christabel Etheriel Hi Soichi! I sent you a message on your page too. My name is Marilou and I'm writing my thesis on chiptunes. I am trying to find the lyrics to

June 6, 2014 / Leave a comment

Joe pterodactyl squad

Great. I first got into the 8-bit scene through my old band – Spheres of Chaos. We're not active anymore but we used to play shows and record songs back when we were all in secondary school. We played

January 17, 2014 / Leave a comment

Jose Torres 8bc

FB: Conversation started Thursday 16/01/2014 12:55 Christabel Etheriel Dear Jose, My name is Marilou and I'm finishing my thesis on chiptunes at Oxford University (this is my link: <http://www.music.ox.ac.uk/about/people/residents> students/current/marilou-polymeropoulou). As you can guess, I am bothering you to

January 17, 2014 / Leave a comment

Rockman Navarro

Conversation started 26 December 2013 26/12/2013 04:40 Christabel Etheriel Hi Rockman! My name is Marilou and I'm writing my doctoral dissertation on chiptunes. I just watched a video (<http://www.youtube.com/watch?v=Rm0R5g5rkeo&feature=youtu.be>) and I wanted to ask you where

January 17, 2014 / Leave a comment

Carl micromusic.net

Hey Marilou Nice to hear from you again. We have active accounts: 23478 Hope this helps! All the best greetz carl Am 13.01.2014 um 15:51 schrieb Marilou Polymeropoulou <marilou.polymeropoulou@music.ox.ac.uk> Dear all at micromusic.net, My name

January 17, 2014 / Leave a comment

Timothy Lamb CM.org

Conversation started Wednesday 15/01/2014 22:23 Christabel Etheriel Dear Timothy, my name is Marilou and I'm finishing my dissertation on chiptunes. I'm messaging you as I've got some questions about cm.org and I was hoping you could help me..

January 17, 2014 / Leave a comment

Image A.6. Sample from my e-fieldnotes blog (see chapter three for research methods).

4.3 Network visualisation environment (Gephi)

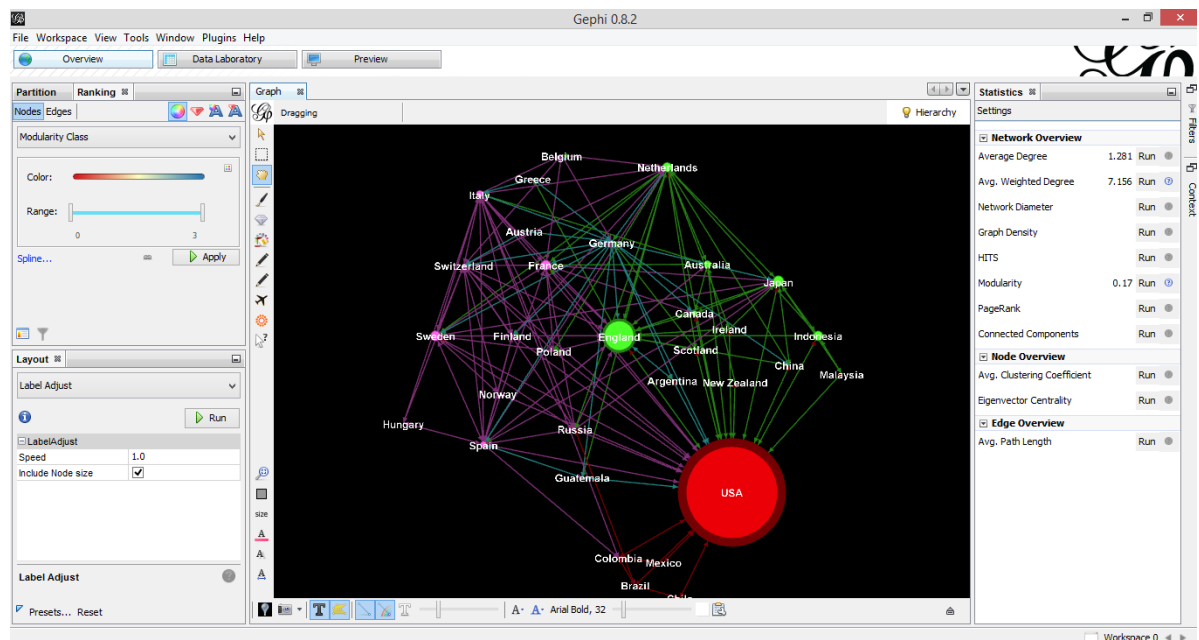


Image A.7. The chipscore network in Gephi environment. See chapter four for network visualisation and analysis.

5. Datasets sample

Gephi countries-nodes by size (largest to smallest)

Id	Label	Degree			Weighted Degree	Weighted	
		In-Degree	Out-Degree	Degree		In-Degree	Out-Degree
1	USA	1	24	25	51	27	24
2	England	1	17	18	36	18	18
3	Japan	2	0	2	24	13	11
4	Sweden	2	0	2	24	11	13
5	France	2	0	2	24	13	11
6	Indonesia	1	0	1	8	3	5
7	Netherlands	2	0	2	32	14	18
8	Australia	2	0	2	14	7	7
9	Italy	2	0	2	25	10	15
10	Spain	2	0	2	27	11	16
11	Canada	1	0	1	8	5	3
12	Switzerland	2	0	2	25	14	11
13	Germany	2	0	2	32	15	17
14	Finland	1	0	1	13	8	5
15	Scotland	2	0	2	7	3	4
16	Russia	1	0	1	14	7	7
17	Norway	0	0	0	7	2	5
18	Belgium	0	0	0	9	5	4
19	Mexico	1	0	1	3	1	2
20	Brazil	1	0	1	8	4	4

21	Poland	2	0	2	9	5	4
22	Austria	0	0	0	3	1	2
23	Greece	1	0	1	5	3	2
24	Chile	1	0	1	4	2	2
25	Ireland	2	0	2	8	4	4
26	Argentina	2	0	2	6	3	3
27	Hungary	0	0	0	4	3	1
28	China	2	0	2	7	5	2
29	Colombia	1	0	1	7	5	2
30	Malaysia	1	0	1	6	3	3
31	New Zealand	1	0	1	3	1	2
32	Guatemala	0	0	0	5	3	2

Comparative dataset.

Country	CW D	C= W	E8bi ts	8B C	Informa nts	Relea ses	Even ts	TOT AL	Influe nce	New Total
USA	262	305	0	0	31	130	7	735	9	6615
England	49	47	9	62	16	47	3	233	9	2097
Japan	42	12	0	2	5	8	2	71	10	710
Sweden	42	17	5	9	3	18	3	97	7	679
France	20	8	3	18	25	32	5	111	6	666
Indonesia	42	18	0	14	7	7	3	91	7	637
Netherlan ds	14	9	7	17	7	7	1	62	10	620
Australia	36	24	0	48	3	7	2	120	4	480
Italy	9	6	12	18	14	11	5	75	6	450
Spain	10	4	6	12	10	10	5	57	7	399
Canada	34	27	0	30	0	22	0	113	3	339
Switzerla nd	6	2	3	6	2	3	1	23	10	230

Germany	20	19	2	15	8	14	1	79	2	158
Finland	10	2	0	2	2	2	0	18	7	126
Scotland	19	5	0	31	0	2	2	59	2	118
Russia	6	9	1	4	5	18	0	43	2	86
Norway	5	5	2	1	0	1	0	14	4	56
Belgium	7	0	0	2	0	0	2	11	5	55
Mexico	17	7	0	7	3	1	2	37	1	37
Brazil	7	4	0	5	0	17	0	33	1	33
Poland	6	4	0	3	1	12	0	26	1	26
Austria	6	2	0	2	0	2	0	12	2	24
Greece	1	0	0	7	6	5	4	23	1	23
Chile	9	3	0	5	0	5	0	22	1	22
Ireland	8	2	0	6	1	1	0	18	1	18
Argentina	7	2	0	4	1	0	0	14	1	14
Hungary	3	1	4	1	0	0	2	11	1	11
China	5	3	0	1	0	1	0	10	1	10
Colombia	4	0	0	2	0	2	0	8	1	8
Malaysia	2	2	0	1	0	0	1	6	1	6
New Zealand	1	2	0	1	0	2	0	6	1	6
Guatemala	1	1	0	1	0	0	0	3	1	3

6. Lyrics

V1	梅は咲いたか 桜はまだかいな 柳なよなよ風次第	Ume wa saita ka sakura wa mada kaina yanagi nayonayo kaze shidai
C1	山吹や浮気で 色ばかり しょん がいな	yamabuki ya uwaki de iro bakkari shon gaina
V2	柳橋から 小舟で急がせる 舟はゆらゆら波次 第	Yanagibashi kara kobune de isoga seru fune wa yurayura nami shidai
C2	舟から上がって土手八町 吉原へご案内	fune kara agatte dote hachi-chō Yoshiwara e go an'nai
V3	アサリ取れたか ハマグリまだかいな アワビくよくよ 片想い	asari Toreta ka hamaguri mada kaina awabi kuyokuyo kataomoi
C3	サザエは恪気で 角ばかり しょん がいな 山吹や浮気で 色ばかり しょん がいな	sazae wa rinki de tsuno bakkari shon gaina yamabuki ya uwaki de iro bakkari shon gaina
C4	舟から上がって土手八町 吉原へご案内	fune kara agatte dote hachi-chō Yoshiwara e go an'nai

Table A.1. “Plum Song” lyrics, borrowed from “Ume Wa Saitaka”. V and C stand for Verse and Chorus respectively (see chapter six for analysis).

Free translation:

Has the plum bloomed? How about the cherry blossoms? Haven’t they bloomed yet? The movement of trees depends on the wind.

When the wind comes from the mountain, it goes nowhere but everywhere, like playing around Yamabuki flowers’ vibrant colour that stands out.

The boat departs from Yanagibashi and it seems they are in a rush, but the speed depends on the fluctuating waves and so does your heart. They got on to the land and yanked to Yoshihara as they were provoked.

Where are Sazae and Hamaguri? *[Seashells eaten in Japan]* Sazae has nothing but a horn to harm. The wind is blowing helplessly from the mountain and goes anywhere.

It’s ok to just let it be. Well, let’s go back to Doteyamachi *[where the Geisha lives]* and I’ll guide you to Yoshihara *[meaning, to play with other Geishas]*.

7. Flyer samples

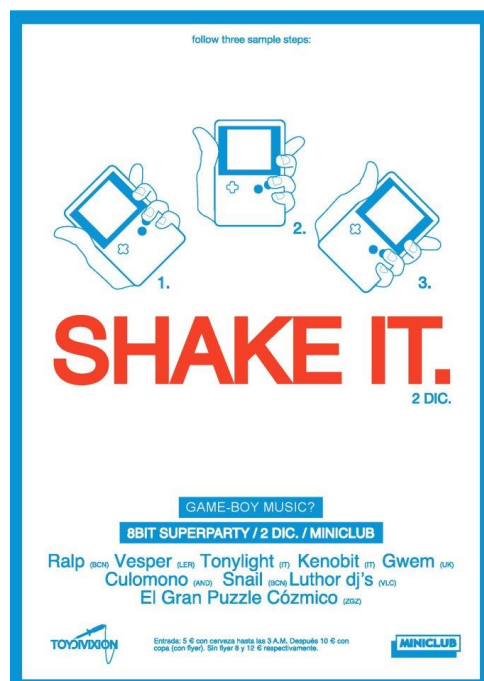
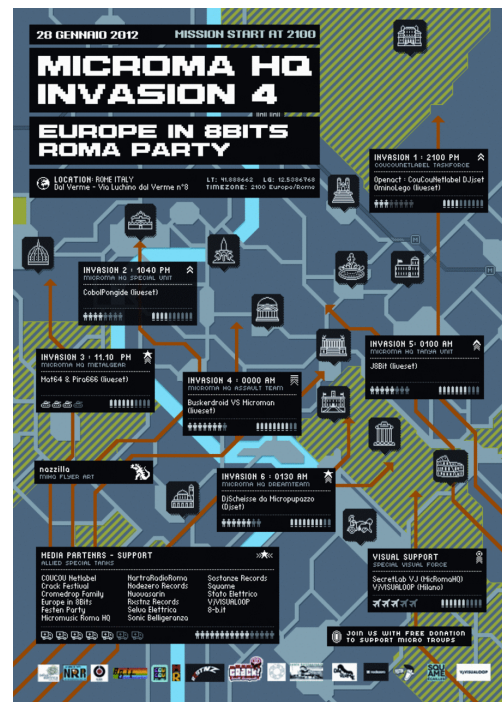
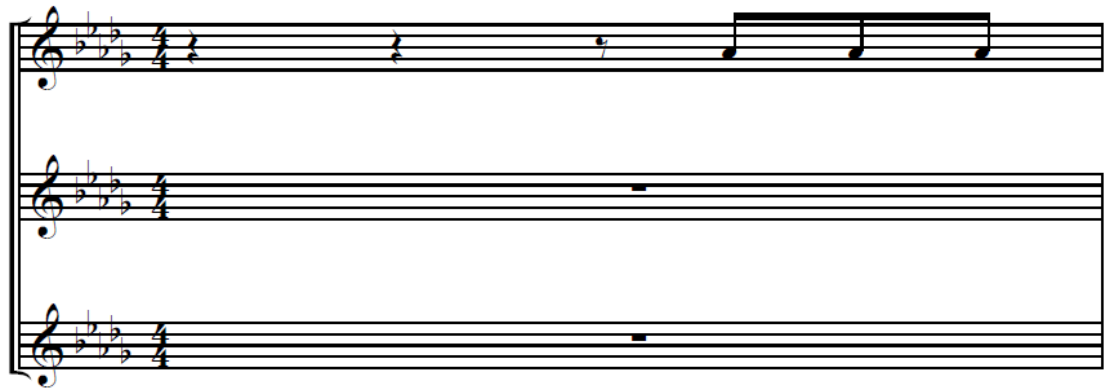


Image A.8. Flyers from chipmusic events. From top left and clockwise: Megabyte (Manchester, England), Microma (Rome, Italy), Shake it (Valencia, Spain), 8-bit 'em 'all (Paris, France).

8. Tempest (2000) Acidjazzed evening. Transcription.

See chapter seven for analysis.



4

System 4 of a musical score in 3/4 time, featuring a treble and bass staff. The treble staff contains a melody of eighth and quarter notes, while the bass staff provides a steady accompaniment of eighth notes. The key signature has three flats.

5

System 5 of a musical score in 3/4 time, featuring a treble and bass staff. The treble staff continues the melody with a mix of eighth and quarter notes. The bass staff maintains the accompaniment pattern. The key signature has three flats.

6

System 6 of a musical score in 3/4 time, featuring a treble and bass staff. The treble staff shows a continuation of the melodic line. The bass staff provides the rhythmic foundation. The key signature has three flats.

7

System 1, measures 7-8. The key signature has three flats (B-flat, E-flat, A-flat). The first staff (treble clef) contains a melodic line starting on G4, moving to A4, B-flat4, A4, G4, and ending with a half note F4. The second staff (treble clef) contains a continuous eighth-note accompaniment pattern. The third staff (treble clef) contains a bass line starting on C3, moving to D3, E3, and ending with a half note F3.

8

System 2, measures 8-9. The first staff (treble clef) contains a melodic line starting on G4, moving to A4, B-flat4, A4, G4, and ending with a half note F4. The second staff (treble clef) contains a continuous eighth-note accompaniment pattern. The third staff (treble clef) contains a bass line starting on C3, moving to D3, E3, and ending with a half note F3.

9

System 3, measures 9-10. The first staff (treble clef) contains a whole rest. The second staff (treble clef) contains a continuous eighth-note accompaniment pattern. The third staff (treble clef) contains a bass line starting on C3, moving to D3, E3, and ending with a half note F3.