

Acoustic exposure, fire and belonging.

Abstract

In Catalunya, devils are people belonging to *Colla* (a group partaking in fire and drumming street performances) that carry and dance with fireworks and firecrackers at the end of a wooden stick. A *Correfoc* is a fire performance where people dressed as devils run around and dance on the streets with fireworks followed by a band of drummers. All together creates a temporarily very loud and visually attractive ambience. Like a very loud and rhythmical ball of fire passing through a street. Firecrackers and fireworks whistling and exploding produce very loud sounds, sometimes reaching 175dB. The sonic intensity of these performances has to do both with the sound emanating from the fireworks and drums, and the reverberation the streets of Barcelona can create.

Many devils are part of a *Colla* for decades, thus exposing their hearing to extreme levels of sound several times a year, and in peak season, several times a week. This results in devils having varying levels of aural diversity and their health being negatively impacted by the sound they willingly expose themselves to. These aural diversity is worn as a kind of “badge of belonging” and commitment to the *Colla*.

This paper examines the intricacy behind this sense of belonging and the reasons why the health impacts do not seem to deter participation in *Correfocs*. It also examines why are fireworks producers keeping their product so loud. It concludes proposing an aurally sustainable approach to partaking in this inherent element of Catalan popular culture.

Keywords: aural diversity, acoustic health, impact, aurally sustainable.

Paper: Acoustic exposure, fire and belonging

Introduction: a bit of context

Catalunya (one of the autonomous communities in Spain) has a longstanding tradition of using fire in some form or another in popular culture contexts (Berrens 2022). In this paper we are going to focus on one of these celebrations, called *correfocs* (fire runs).

In Catalunya, devils are people belonging to *Colla* (a group partaking in fire and drumming street performances called *Correfocs*) that carry and dance with fireworks and firecrackers at the end of a wooden stick. A *Correfoc* is a traditional Catalan celebration and fire performance where people (devils) dressed as devils run around and dance on the streets with fireworks. The devils are accompanied by a soundtrack played by *tabalers* (devils that do not burn, they play drums). All together creates a temporarily very loud and visually attractive ambience. It is a very loud and rhythmical ball of fire dancing and jumping through a street. Firecrackers and fireworks whistling and exploding produce very loud sounds, sometimes reaching 175dB. The sonic intensity of these performances has to do both with the sound emanating from the fireworks and drums, and the reverberation the streets of Barcelona can create.

The devils are people belonging to a *Colla*, and their clothing is specially fireproofed clothing simulating to be devils and coming from Hell. The *Colla* is a popular entity created to gather and train people that want to either be devils or drummers and partake in these fire performances. There can be different sections in each *Colla*, for example it can have a children's section, or a section with a Fire Beast (an animal sculpture that is mobile and has several points to attach fireworks).

Within these sections we find that the children will carry special fireworks that are less loud, and are obliged to wear protective gear in their eyes with either a shield or protective glasses. They also wear gloves and are not allowed to touch or manipulate fireworks. Adults will always accompany children in order to put in the firecracker at the end of the *maça*, a long wooden stick with a metallic spike to put the firecrackers on and take it when it has exploded (Berrens 2022). In this sense, it is important to note that a child can become a fire devil aged 10 and they pass onto the adult section of the *Colla* when they turn 18. This is a rite of passage, both into adulthood within the *Colla* and into the group of people who can then manipulate fireworks and firecrackers.

In this sense, we can see that a devil can start partaking in *Correfocs* from a very young age, and can stay in the *Colla* for decades, thus exposing their hearing to extreme levels of sound several repeatedly every year for many years, and in peak season, several times a week. This results in many devils having varying levels of aural diversity and their health being negatively impacted by the sound they willingly expose themselves to. This aural diversity is often worn as a kind of "badge of belonging" and commitment to the *Colla* (Berrens 2022).

This paper will first explain the different kind of firecrackers typically used in a *Correfoc* and their construction and sonic impact. It will then analyse the data gathered from burners and the interviews with fireworks makers. Overall the paper

examines the intricacy behind this sense of belonging and the reasons why the health impacts do not seem to deter participation in *Correfocs*. It also examines why are fireworks producers keeping their product so loud. It concludes proposing an aurally sustainable approach to partaking in this inherent element of Catalan popular culture.

Our Colla

I have been a devil since 2017 is one of the oldest fire groups of my neighbourhood, Gracia, in Barcelona. Our *Colla* has been active for over 40 years. But the *Correfoc* tradition is far longer than this. It started as a play between devils and archangel Saint Michael and has evolved to the street celebration it is now over time (Berrens 2022). Our *Colla*, “La Vella de Gràcia” (The Old one from Gracia) comes from an older *Colla* in a village near Barcelona, Sitges, and it has three sections, *Malsons* (Nightmares) which are the children, *Adulta* (Adult) for the people aged over 18 and *Atzeries* (Atzeries) which is a beast, half devil, half buck, that is over 3 meters tall, is anthropomorphic (particularly in its manicured hands with long nails) and has several attachments for firecrackers. All sections have devils that burn (*devils from now on*) and *tabalers* (drummers), for *Malsons*, *tabalers* can start as young as 7 years old, they must be 10 to be devils.

Malsons are celebrating their 15th anniversary this May 2022 and *Atzeries* celebrated its 5th last May. Overall it is a very well established *Colla* in Barcelona and in Catalunya. Counting all sections we are above 100 people. The adult section of the *Colla* has a steady participation in 13 *Correfocs* every year at least, plus the ones that *Malsons* and *Atzeries* do on their own or to the ones to which the whole *Colla* is invited. This year we are partaking in Catalunya’s third fire contest. We won third position in the 1st Catalan Fire contest. This is a contest where different Catalan *Colles* come and participate by doing two big fire performances and they are evaluated according to different aspects. At the end there is a communal burn where more than 280 devils burn at the same time. It is spectacular, and can be harrowingly loud.

A *Correfoc* will follow a pre-determined route through the streets of Barcelona or any village. It consists of devils jumping and dancing around the streets with spectators running into the space the devils are dancing and making playful human barricades to stop the devils from advancing in the route. Devils will normally dance while advancing, making a single or a double line (either one or two devils at a time) while the firecracker at the end of their *maça* is still going, then they stop, return and get another one and restart. At certain intersection all devils gather to do one joint burning, where they form a circle and all light their firecrackers simultaneously, then making two steps backwards and creating a ball of fire, all jumping together in a circle until the last firecracker explodes. So we can see that a *Correfoc* has a noticeable amount of “back and forth” and, as such, is not a linear follow of the predetermined route. Therefore, a single *Correfoc* with a two-kilometre route can take over an hour for a single *Colla* to go from start to finish. In addition, whenever there is a *Correfoc*, there are several *Colles* participating. So there is a line of *Colles*, each burning separately during the route and then having a communal, massive burn at the end of the route, when all *Colles* have arrived.

This brief explanation of the functioning of a *Correfoc* is to illustrate the amount of time devils spend in the many *Correfocs* they partake in per year, and as such, the number of decibels their ears are exposed to several times a year for extended periods of time.

Methodology

This is an on-going research and, as such, this paper is a work in progress. It started before the pandemic, in 2019 and was abruptly interrupted by the pandemic. It started as a reflective street ethnography (Spry 2001) as a first part of a methodological bricolage (Kusenback 2033; Murthy 2008; Yardley 2008).

This bricolage is also comprised of several rounds of surveys sent to several *Colles* in Barcelona, throughout their sections. This survey is quantitative, multiple-choice questions. It covers all sections of a *Colla*, and in the case of minors, parental consent has been granted to use anonymous data collected but the surveys have been asked to be filled by the children partaking in the burning themselves. The idea behind this is to build a longitudinal research following the hearing evolution of the children that are taking part on this research through the years in order to see what is the evolution of their hearing with time.

The second parts of the methodology are interviews done pre and post *Correfocs* to participating devils. The first survey was distributed to four devil groups in Barcelona in 2021 (Berrens 2022). The second survey has been distributed to many Barcelona *Colles* this 2022 and is still accepting replies. The data analysis will be done based on thematic and grounded theory analysis but once all the information from the second survey has been collected and analysed and the interviews have finalised. It is *Correfocs* time now in Catalunya, so from now until end of June there are four *Correfocs* where interviews will be held (Wetherell 1998; Liu 2016).

Pyrotechnics

The firecrackers and fireworks we use in *Correfocs* are done in five main factories in Catalunya: Estalella, Garcia, Igual, Tomàs and Catalana. For this research I am conducting structured interviews with them in order to understand the detail in the manufacturing of pyrotechnics.

The most common item of pyrotechnics we use in *Correfocs* are “carretilles” which is single firecrackers with a plastic ring around it to be able to attach to the *maça* (Berrens 2022) and it can be a *carretilla* that while it burns, while having sparks exit one of its ends, also makes a continuous whistling sound, called “whistlers” or the other that doesn’t make the whistling sound. Both of them have a “thunder” at the ending, making a loud explosion. In a *Correfoc*, it is common for the figures (the devils that wear a special suit either depicting Lucifer or the Lady devil) to have a special *maça*, called *Ceptrot* that has a lot more spikes to be able to carry more *carretilles*, many times they are “whistlers”. Therefore, it is not uncommon to have a few minutes in a *Correfoc* where there are thirty “whistlers” burning and whistling simultaneously.

Correfocs have an impact upon devils' hearing. Since children's fireworks have no "thunder" or a much lower "thunder", would it be possible to create some fireworks that are as spectacular but less intense in terms of their sonic impact? This is the question that the interviews with the pyrotechnics are going to be oriented towards.

Once I have the data from the interviews, in this section there will be the information on how is the pyrotechnics built and the analysis of its sonic impact. This analysis will be contextualized with the theoretical work on aural intensity and on the pain threshold. It will analyse the health impacts that pyrotechnics can have on human hearing when the latter is repeatedly exposed to it and the role that ear protection can play in this impact.

This will then connect to the data analysed from the devil's surveys and interviews. It will be contextualized with theoretical work on belonging and aural diversity. It will analyse the way devils live with this aural diversity and if they identify the Correfocs as being the culprits of this acquired diversity. Throughout the analysis a special emphasis will be put on the sense of belonging and potential hearing loss not (or yes, depending on the data) being a deterrent of being part of a Colla.

The conclusion wants to propose an aurally sustainable approach to partaking in this inherent element of Catalan popular culture.

(These elements of the paper are ongoing so cannot be written up before the data has been analysed. At this point I am gathering and doing preliminary analysis).

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