

Reds
are always
longer

Overview

War sounds

Fake triggers

Observations

Survey Method:

The artist conducted personal interviews and surveys using questionnaires. The interviews followed a non-standard structure: conversations with respondents were held in a free-form manner, allowing them to openly express their emotions, memories, and associations triggered by the sounds of war. All conversations were recorded in audio format and digitized for further analysis.

Topics of Discussion:

- Sounds of war and the colors associated with specific war sounds
- Additionally discussed were the sounds and colors of victory, imagined futures, silence, comfort, and happiness.

Objective:

To gain a deep understanding of the associations between sounds and colors for each participant.

Advantages:

- The absence of rigid frameworks allowed for a sufficient number of participant responses. It was also effective that the interviewer was an artist – respondents were more willing to speak about the irrational and share personal experiences.
- The large volume of recordings provided a foundation for analysis, which involved identifying key themes such as explosions, gunfire, threats from the sky, and false war sounds (noises that only seem like war-related sounds).
- The use of various sets of color cards enabled participants to select shades that most accurately reflected their associations with specific sounds. This approach offered greater flexibility and precision in conveying color perception. Participants were better able to identify the colors they were describing by using physical samples, which reduced the risk of misinterpretation of their words.

Limitations:

Due to the non-standard format of the interviews, the analysis required significant effort to structure the data. Participants recalled sounds spontaneously and often clarified certain associations only at the end of the interview. Not all participants were offered sets of color cards, which may have caused confusion in color selection and affected the results.

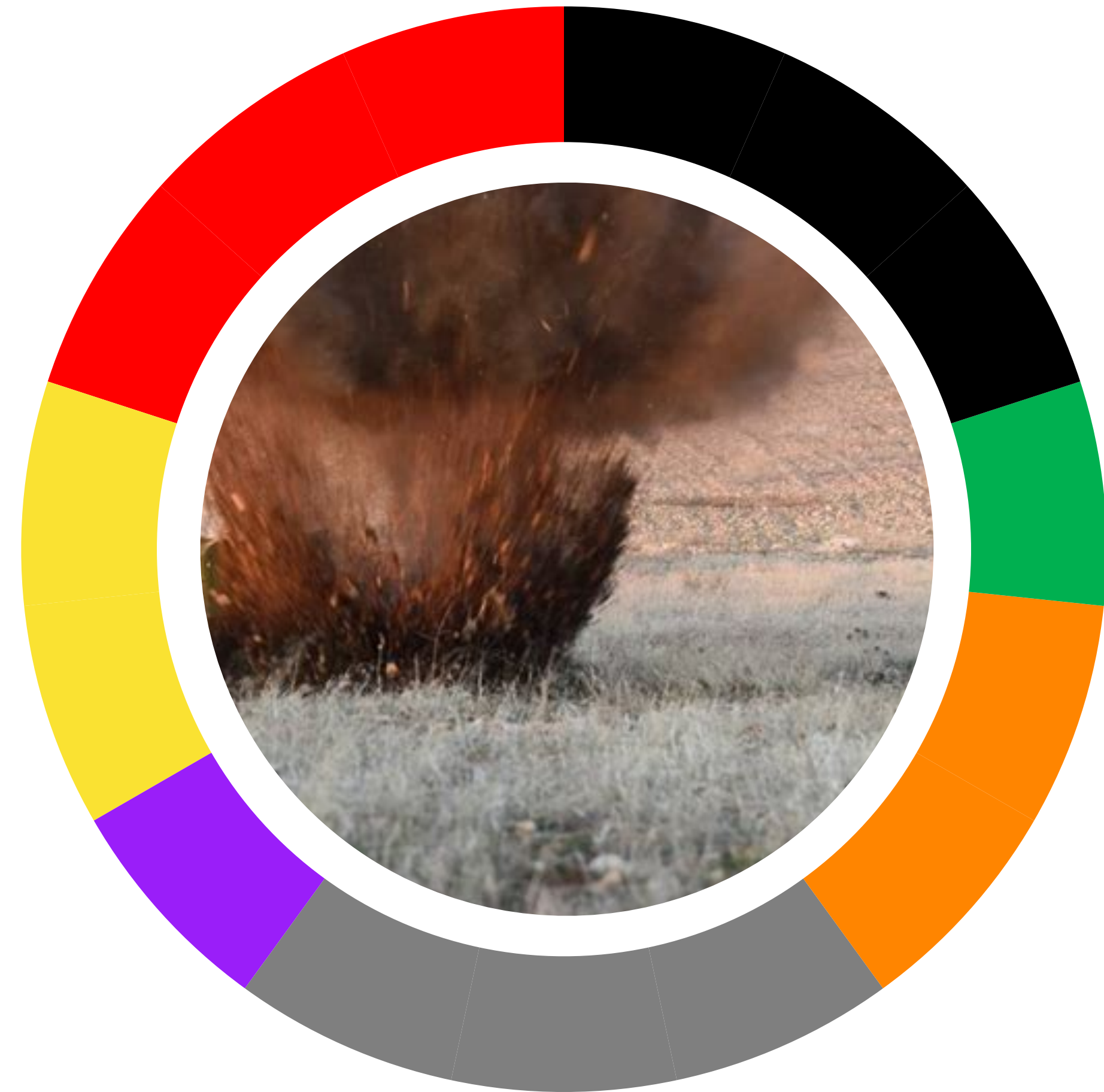
Colors were described by participants without a clear structure, revealing a wide range of interpretations. For example, the term "red" was used with various qualifiers (dark red, dull red), but these nuances were difficult to systematize into a unified color palette. The lack of standardization complicated the creation of precise color profiles for each sound.

During the summer and autumn of 2024, artist Alevtyna Kakhidze conducted a survey aimed at exploring the perception of sound following the full-scale Russian invasion of Ukraine. The survey encompassed four categories of people: military personnel (active and wounded), civilians (who experienced traumatic events due to the war), artists, and children (living abroad because of the war). In total, she interviewed 60 Ukrainians and one volunteer soldier from Poland.

The artist asked respondents about their perception of the sounds of war and the colors they associate with those sounds. The responses were used to create the audiovisual artwork Coloropera. Presented here is a brief report of the survey along with her own conclusions and observations. The full survey (so-called “warm data”) is available upon personal request.

What color do military people hear **explosions**:

For the majority of military personnel surveyed, the sound of an explosion is associated with alarming colors. The only exception is the color green, as one respondent experiences these sounds as pleasant due to elevated adrenaline levels.



What color do military people hear **shots**:

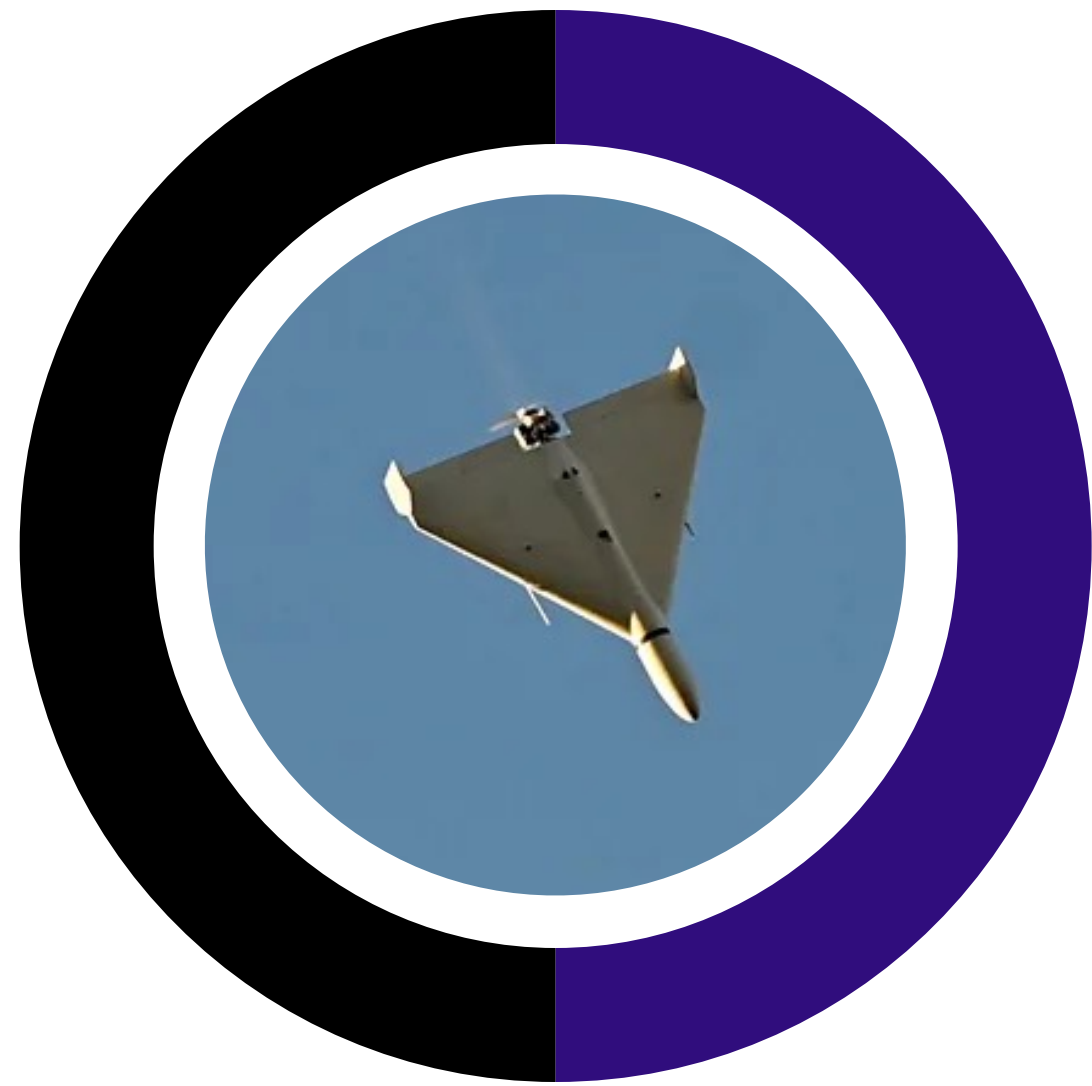


RPG
(Rocket-Propelled Grenade)



PKM
(Kalashnikov Machine Gun)

What color do military people hear danger from the sky:



Drone Shahed-136



Drone Mavic



Drone FPV



The whistle of a mortar

What color do **civilians** hear:

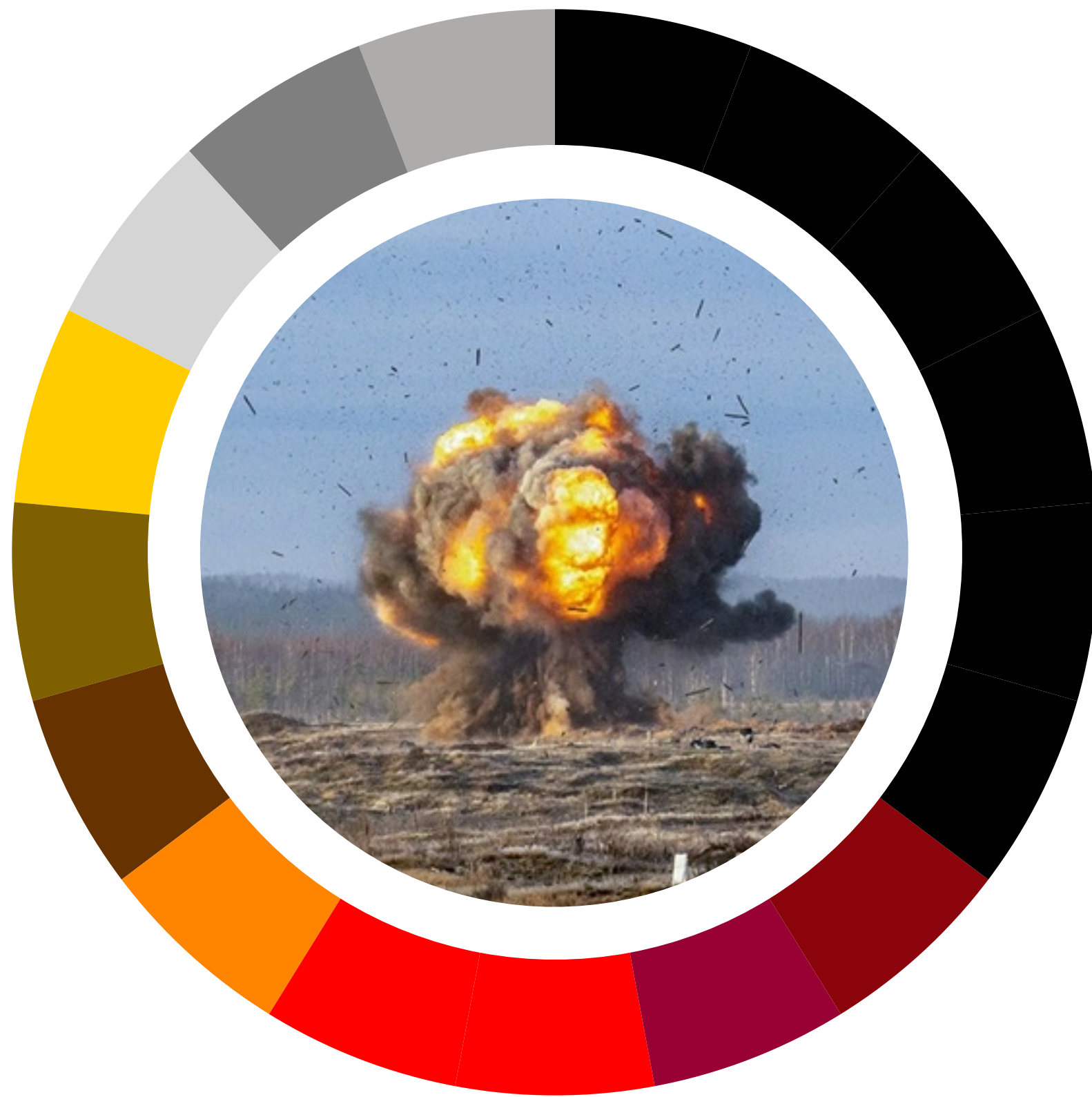


Explosions

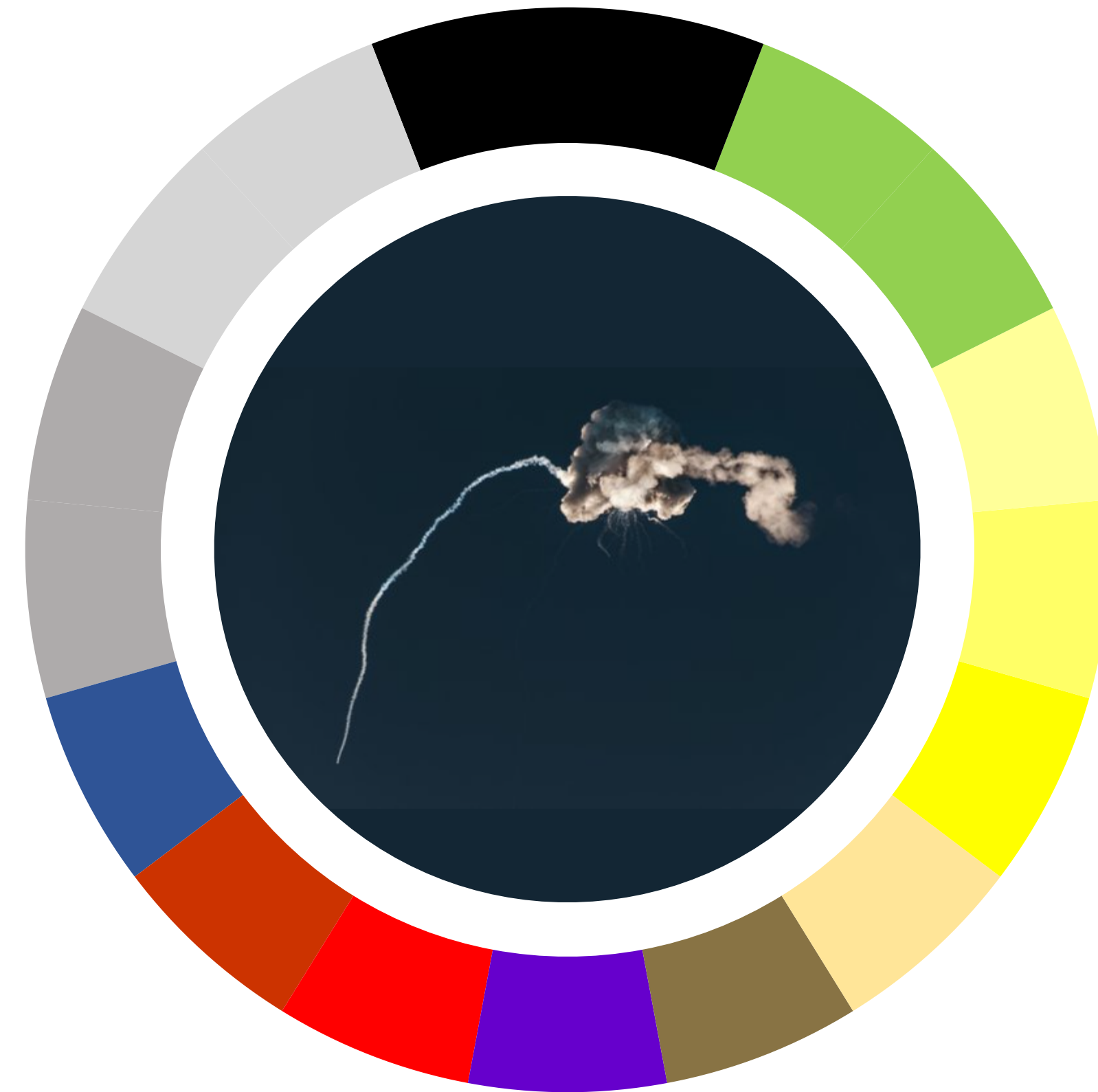


Danger from the sky

What color do **artists** hear:



Explosions



PVO system

What color do artists hear **sound harmonies**:

To assist the composer in more accurately working on the audiovisual opera, the artists were also asked separately which colors they associate with the musical harmonies of la major and la minor.



La minor



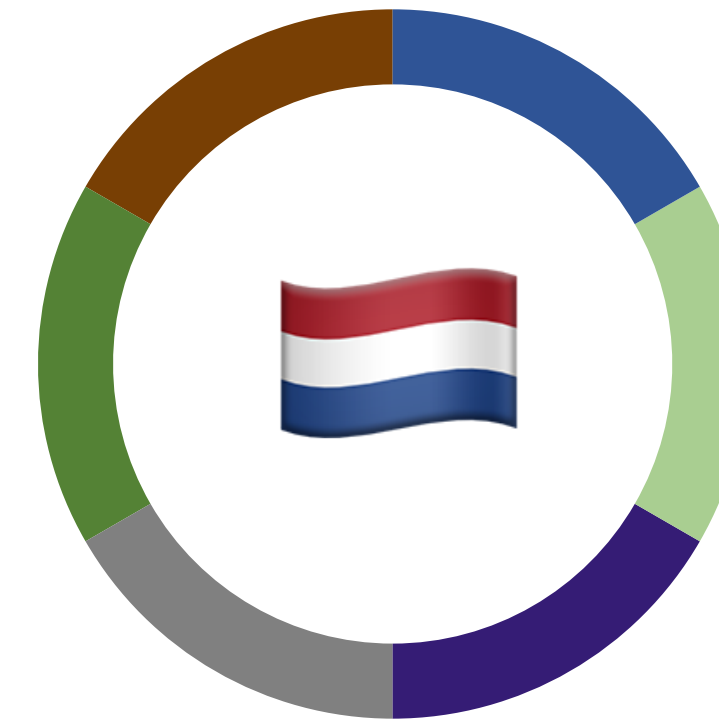
La major

What color do children hear **languages**:

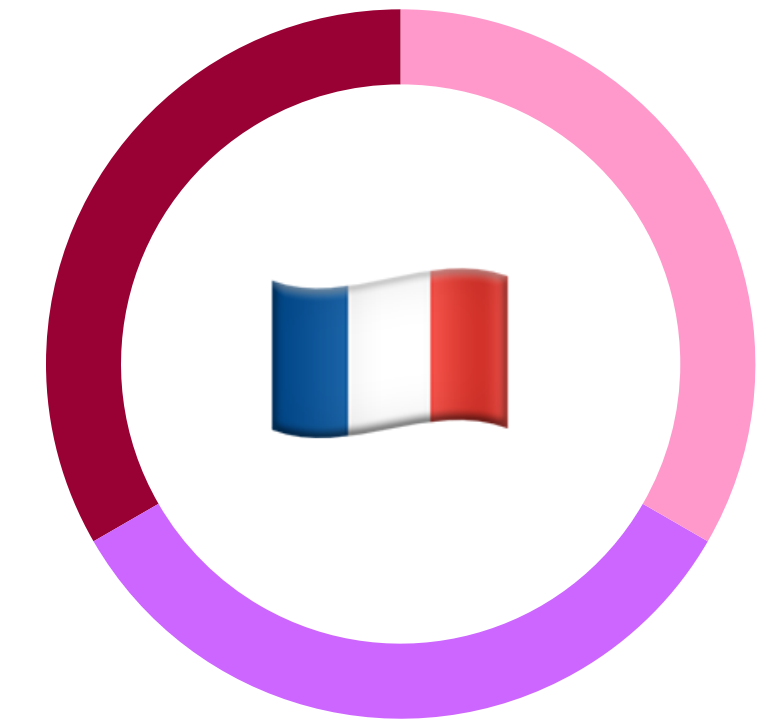
Children who left Ukraine at the start of the war are adapting to new environments, often without familiar social circles. Studying them reveals how sensory experiences help manage stress. Many described the colors of the languages they now hear – a key focus of the research.



Ukrainian



Dutch



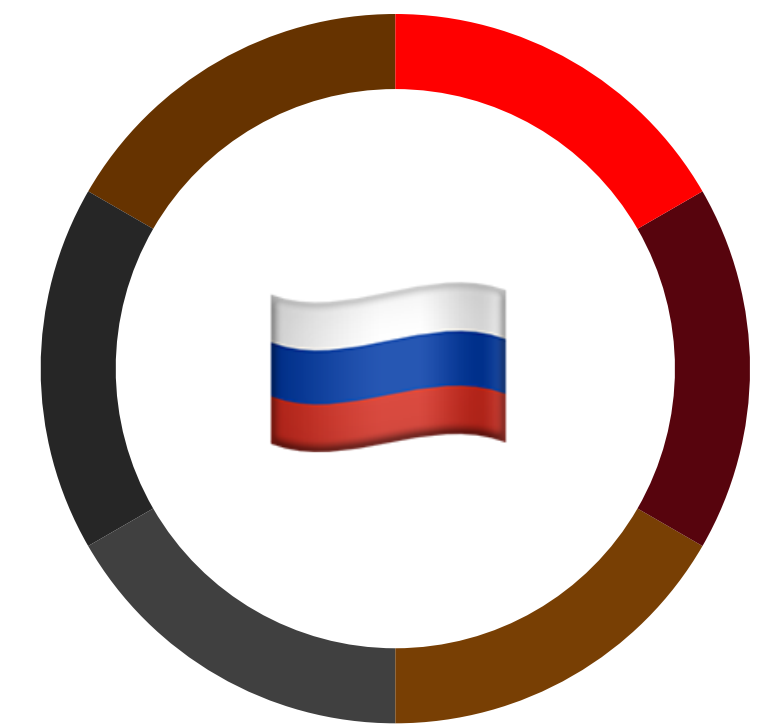
French



Turkish



German



Russian

After many years of war, Ukrainians have become well acquainted with its sounds – such as the hum of drones, the flight of missiles or their interception, sirens, the noise of generators, or trains.

At the same time, mimic sounds have emerged – those that resemble war sounds, evoke fear, or make life less comfortable, even far from the front line.

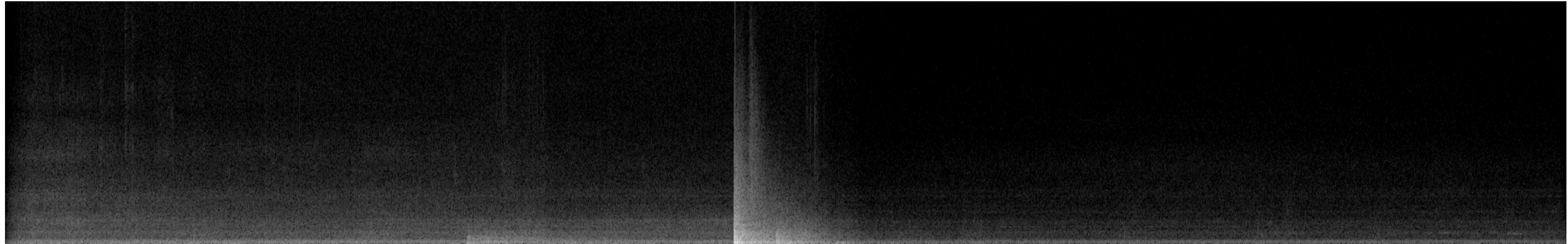
These false war sounds can return a person to a previously experienced traumatic event. Spectrogram images demonstrate the similarity between the character of real war sounds and "unreal" ones, but discomfort arises only after experiencing the real ones—not the other way around.

Overview

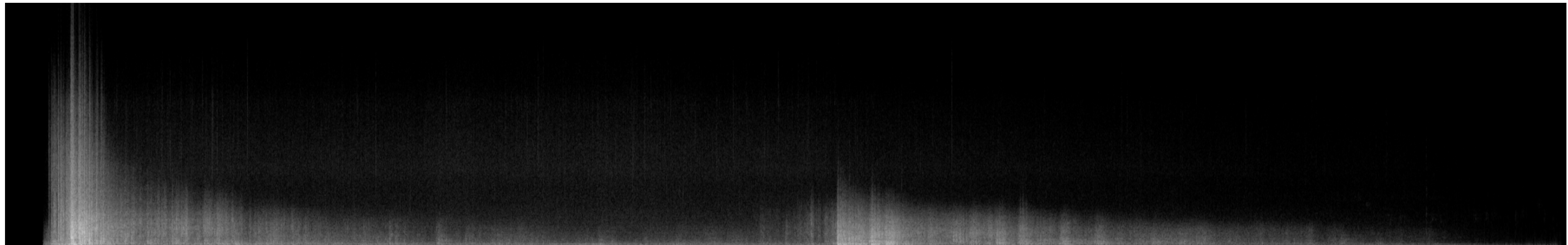
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Sound spectrogram: **explosion**



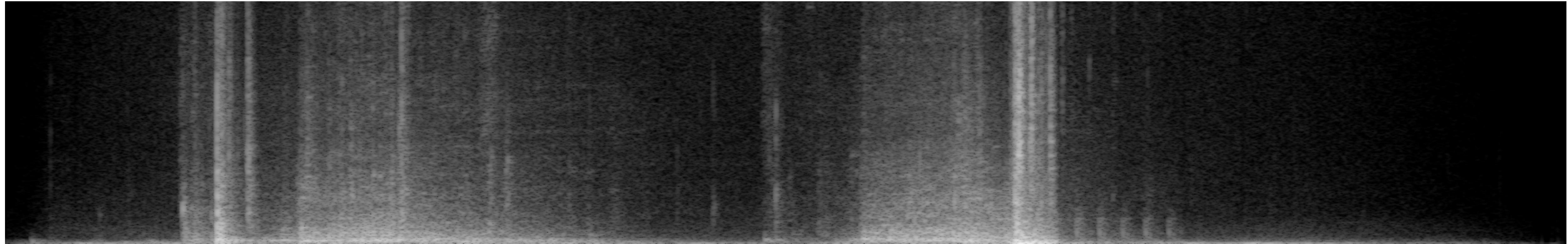
Sound spectrogram: **thunder**

Overview

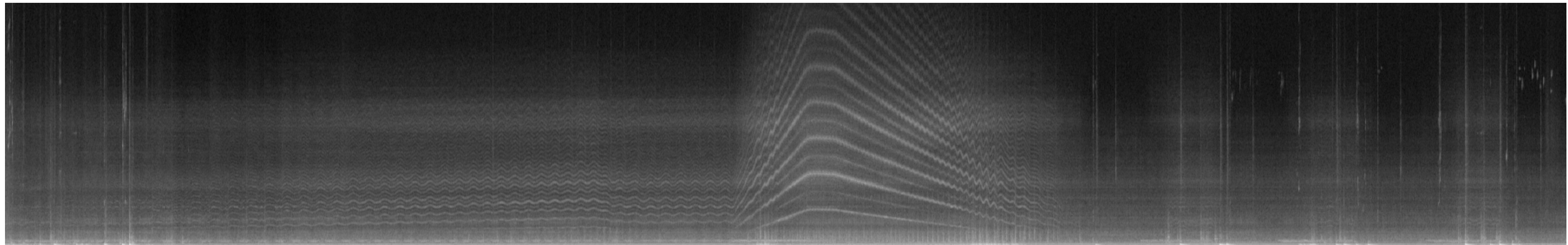
War sounds

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Sound spectrogram: **bus door closing**



Sound spectrogram: **washing machine**

Fake sound: Sneakers in the washing machine.



Real sound

"The washing machine. You know, when the sneakers hit the drum. It reminded me of the sound of a cassette bomb".

Dmytro, wounded soldier, limb amputation (9:47)

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Fake sound: Dishes falling.



Real sound

"A rocket strike".

Val. Civilian. Has experienced heavy shelling.

Fake sound: A chair falling.



Real sound

"Something falls to the floor – and your first association is that it's an explosion. Then your eyes register that, say, it was just a chair that fell".

Ihor, soldier (15:51)

Fake sound: A van door slamming shut.



Real sound

"When I arrived here, if we're talking about specific sounds, the first one that reminded me of a nearby shell impact was the sound of a van door closing – when you're sitting inside and the door slides along the rails and at the end – thud, it slams shut".

Roman, wounded soldier, limb amputation (1:05)

Fake sound: A car driving over cobblestones.



Real sound

"I live on Horodetskoho Street near the Franko Theater, and when cars speed down from Bankova over the cobblestones, the sound still triggers me – it's like a low-flying plane. Even now, I sometimes freeze: fwoooooosh"...

Fake sound: A commuter train approaching.



Real sound

"When I'm here, going through rehab, lying down... there's a railway track nearby, and commuter trains pass by. That approaching train sound – I can't say exactly what it compares to, but it feels very close to what I used to experience at the front".

R., a wounded soldier with a limb amputation(02:45)

Overview

War sounds

Fake triggers

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Fake sound: Motorcycle exhaust.



Real sound

"Feels like a Shahed drone flying overhead".

Vlad, civilian. Lived through the occupation of his city under heavy shelling.

Fake sound: A tire braking on asphalt.



Real sound

"When the tire hits the asphalt, it sounds like a plane. I used to freeze in fear at helicopters or jets — then I'd remind myself: Ukraine has air defense; if it's flying, it's likely ours".

Oksana, civilian, survived occupation and heavy shelling. (13:49)

Fake sound: A car driving over a manhole cover or paving slabs.



Real sound

"When there's an open manhole on the road and a car drives over it, the sound of the vehicle reminds me of a tank, and the slab or manhole cover itself reminds me of buildings and homes being destroyed".

Vlad, civilian. Lived through the occupation of his city under heavy shelling (01:30)

Fake sound: Dragonfly**Real sound**

BM-21 Grad, a Soviet-designed multiple rocket launcher system used for firing salvos of unguided rockets. The name "Grad" means "hail" in Russian, symbolizing the devastating, wide-area impact of its attacks.

Alevtyna, civilian. Survived shelling.

Fake sound: Thunder**Real sound**

"It really depends where the thunderstorm is. If it's right above you – like the other day, we had stormy weather – it's very unpleasant, feels like a shell has exploded, because it's so sudden and unexpected".

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Fake sound: The wind whistling.



Real sound

Enemy shell

R., a wounded soldier with a limb amputation (02:45)

Overview

War sounds

Fake triggers

Observations

Fake sound: A car passing under a bridge.



Real sound

Earthquake

Chern., civilian, involved in volunteer work in active combat zones (13:58)

Respondents described war sounds—explosions, whistles, drones—not only in technical terms but through color associations. Explosions were most often linked to black, red, or gray, with no mentions of pink or light blue. Many noted that the perception of a sound changes depending on control: a “friendly” explosion might appear green, while an unexpected one felt deadly. Explosions are perceived as darker and more vivid when they are closer.

Military participants emphasized the fear in the moment between a missile’s launch and impact, often describing heightened senses or instinctive prayer. Civilians and artists could often distinguish air defense from incoming strikes, associating each with distinct colors.

Color associations are not possible with unfamiliar sounds – **only with sensations.**

"For example, in the U.S., I heard an unfamiliar plane overhead – the sound was so strange I even crouched. It made me anxious, not fearful. I'd describe it as deep burgundy". (00:38)

Oleksii, wounded soldier, limb amputation

Out of the 60 respondents, **only one person** expressed a liking for the sounds of explosions.

"As strange as it may sound,
I like the sound of explosions". (at 02:56)

"I really, really like the sound
of an RPG shot". (at 03:03)

Oleksii, wounded soldier, limb amputation

Color associations for explosions and whistles (sounds of war) do not match the color associations of civilian life sounds.

"Yellow – that's the whistle of a mortar". (03:55)

"Red – something close to red, like fire, it feels warm to me". (06:27)
(an association with calmness and family)

Dmytro, wounded soldier, limb amputation

"A direct hit (explosion)? I'd say the sound is definitely green for me – the most intense green". (10:40)

"'Screech' – honestly, I'd describe this color as a fluorescent yellow, or a bright pink. You know, the kind you look at and—damn, your eyes start to bleed". (03:54)

Oleksii, wounded soldier, limb amputation

Most civilian respondents, including artists who are also civilians, can recognize the sound of air defense systems and “see” (associate) it with different colors than those associated with incoming strikes and explosions.

"By the way, I can tell when debris is falling. I can hear from the sound that something is hitting the ground". (06:57)

Oksana, civilian, survived occupation and heavy shelling.

The whistle is the future;
the explosion is the past.

"The whistle is something like white — it stands out from everything else, and if you hear it, a different set of instincts kicks in. It's not a color, it's actual death. The whistle of a missile". (25:18)

Nastya, civilian, survived the impact of a ballistic missile nearby.

Even a double bassist who served on the front lines said:

"The scariest sound is when a tank is firing at you. When you hear the shot – that “kuk-pum” – and literally a fraction of a second later – the impact. And in that moment, you're so terrified that all the fear concentrates in that tiny sliver of time between the two sounds". (14:35)

Chern., civilian, involved in volunteer work in active combat zones

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“If it’s whistling – it means
you’re still alive”. (08:39)

Ke., soldier, concussion

Silence is deceptive – it alarms soldiers and heals civilians.

"Silence doesn't bring calm –
it doesn't exist"! (07:16)

Ke., soldier, concussion

On perception – sight and hearing:

"You smell better, you see better" (during combat) (09:19)

Ke., soldier, concussion

Prayer is also a sound of war.

"When a Mavic is buzzing above you, that's one feeling, because you know you have time to react, to jump aside – you have time. But when you realize it's an FPV drone buzzing – you start praying silently, hoping it's friendly, that it's one of ours". (05:40)

Roman, wounded soldier, limb amputation

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