Hack the Experience: Tools for Artists from Cognitive Science

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Control Attention

All art involves control or direction of attention. The first step to hacking experience is to understand how basic human attention works. Once you understand the basics of attention, you can modulate attention in your designed experience and leverage attention to evoke the responses you want in your audience. Understanding basic attention answers the question—why does anything stand out?—and it gives you the tools to make things stand out or blend into the background in ways motivated by your designed experience.

Humans recognize intentionality from a very young age. From the time that an infant is around nine months old they recognize intentionality in movement (Tomasello 2003). Try this the next time you see a baby: roll a ball in front of an eight-month-old baby and they will find it amusing, nine-month-old children find this boring. Balls that roll smoothly don’t exhibit intentionality on the part of the ball and the nine-month-old child recognizes that the ball is not moving on its own because they know that you have set the ball in motion. They sense that the path is too regular and the movement is too uniform. But if that ball is designed to wobble or to follow an irregular path, the situation is different. A nine-month-old child will see variable motion as an indicator of intentionality and will be more interested in how the ball moves. This also works with cats, however old, and of course, it works on adult humans too.

The ability to recognize intentionality develops as the child learns to communicate, and eventually helps the child to incorporate intention into its own communication. Communication critically depends on the mutual recognition of intentionality between two parties. Another developmental skill that we acquire as infants is joint-attention. Joint-attention uses intentionality as a building block for coordination between individuals.

One way coordinated joint-attention happens is through simple contact and following. Mothers and babies do this early in life when the mother looks at something in order to get the baby to follow her gaze to look at the same thing. It is a way of pointing with our gaze and it is a basic way of communicating meaning between two people (Figure 2). Film directors incorporate this concept when they cut from one frame to another where the first frame portrays an actor looking in a particular direction and the following frame displays what the actor is looking at. It creates the effect of joint-attention because it communicates to the viewer of the film what the actor is looking at (Tobin and Oakley 2010; Brown and Dewey 2014). This works in film because it mimics a basic pattern of attention that we learn in infancy. You can make this work in your art by controlling where people look by coordinating gaze and controlling which views are available in the visual field.

Coordinating gaze through contact and following is one way to “mean something” for another person. What are some other ways that we can mean something for our audience? Alert people’s attention to some stimuli. How can you make that stimuli stand out? Inject your new stimuli into a consistent and contrastive background. Here is an easy example from every day life: in a silent room, breaking the silence by speaking is an act of making your stimuli (your speech) stand out in a way that alerts people’s attention.

Some things stand out more than others. In fact, in any given visual scene (like a room), different things will stand out to different people. Taking this further, as people move around a room, different things come into focus for them and stand out to them, while things
that had previously stood out fade into their background experience. It seems that there is a fluidity to what stands out in a given scene and that our motion, viewpoint, and time play large parts in making some things stand out more than other things. Idiosyncratic features like personal interests, familiarity, knowledge, and an individual’s physical location at a given moment also play strong roles in making things stand out and other things less so. Many factors converge to bring something into the foreground as a salient object.

This is not simply a visual phenomenon, but in fact happens in all of the sense modalities and in multiple domains. Things can stand out to peoples’ eyes, ears, noses, mouths, and touch receptors. Things can stand out in time, in space, in awareness, in memory, in routines, in collections, in feelings, and so on. This is a great benefit to artists and experience designers because it means that there are multiple levels on which you can engage your audience—giving them multiple types of salience through a wide variety of formats and media.

But what is this phenomenon at its core? Why does anything stand out? Do properties of the things we notice cause them to stand out? Perhaps in part, but the whole picture has greater complexity because it is a relationship between things in the physical world and our abstract inner world. Things stand out because people attend to the stimuli of the world with an attentional system that is fluid and unresting and attention is disproportionately distributed in the world to some things and not others. It is our attention system that causes things to stand out to us, and properties of the things themselves contribute to how we notice them. We’ll explore this more as the chapter unfolds.

The study of attention systems has produced a variety of cognitive theories that explain how attention works, most notably Tálmý (2000, 2008). But here the focus falls on how attention can be engaged to evoke responses, and how attention works as a tool of cognitive engineering on a rhetorical and semiotic level. One model of attention that helps set up a framework for how to work with other people’s attention is Oakley’s Greater Attentional System (2009).

This model of attention is broken into three systems: the signal system, the selection system, and the interpersonal system.

The signal system deals with how things stand out, the selection system deals with how we pay attention to things over some length of time, and the interpersonal system deals with the ways that attention works between people and how it might be useful for enabling people to share attention. Let’s look at the components of these three systems.

**The Signal System**

This system consists of two elements, alerting and orienting, which work together in Oakley’s words as “*the sensory and dispositive boundary conditions of human meaning making: they determine that which is significant without being significant in themselves*” (Oakley 2009, 27). Alerting is the active element that helps us notice stimuli and is activated when stimuli present themselves with varying degrees of intensity. When new stimuli present themselves, alerting is the process that helps pick which thing to pay attention to in the scene. Orienting is the element that helps pick stimuli based on spatial, temporal, and cultural criteria. It helps organize stimuli based on value to the situation and on relationships to our acquired frames of reference.

**The Selection System**

This system consists of three elements, detecting, sustaining, and controlling, which are the elements that help humans manage their own cognition and consciousness (Oakley 2009, 29). Detecting is
the element that helps humans see what is relevant to what they are
doing, it is a recognition process that relates stimuli to the tasks at
hand. Sustaining enables concentration and focus over lengths of
time. Controlling allows you to use two processes, switching (within
the same domain) and oscillating (between two domains) to coordi-
nate during an activity.

**The Interpersonal System**
This system consists of three elements, sharing, harmonizing,
directing, which enable people to work together on physical and
mental activities. Sharing is the element that permits people to have
“peripheral awareness of another” (Oakley 2009, 34). Harmonizing
is the element that enables joint attention between individuals. Di-
recting is the element that enables one person to manipulate the
attention of other people.

Without knowing anything else about the greater attention sys-
tem, its utility to artists is clear. The very act of creating something
designed to evoke a response of some kind depends on being able
to capture someone’s attention (signal), to control that attention
(selection), and to make their attention work for your purposes (in-
terpersonal). This system will be used throughout the remainder of
this book as one of the underlying frameworks for building effective
experiences.

**An Example from Performance Art**
Situations can be presented to the audience members that draw on
attention patterns from one of the three systems and their elements.
For instance, harmonizing attention works when individuals are able
to engage in joint-attention. Marina Abramovic has explored mu-
tual gaze in several of her performances such as *The Artist Is Present*
(MoMA 2010) and the *Eye Gazing Chamber* which was planned for
the Marina Abramovic Institute, and has explored synchrony be-
tween minds in other projects such as *Measuring the Magic of Mutual
Gaze* (Abramovic et al. 2011) and as a rider in 2013 on the *Compat-
ibility Racer* (a project of Silbert et al. 2012). While some of these
works depend on technology, others depend on simple face-to-face
gazing. This face-to-face harmonization of attention lies at the root
of joint-attention (Tomasello 2003; Oakley 2009) and is even the
context for the most basic form of language use: the face-to-face
conversation (Chafe 1994).

When we apply Oakley’s model of attention to Abramovic’s per-
formance, we can see that gaze in Abramovic’s works is one of the
mechanism that alerts both parties to the agency of the other and
works to sustain itself through the performance of mutual gazing as
the joint activity between the two parties. Interestingly, this sustain-
ing force pushes aside the controlling element (which entails switch-
ing and oscillating attention between stimuli) and perpetuates
itself by the simple language of a mutual gaze. The mutual gaze
bypasses the sharing element of the interpersonal system because
this is not just a simple case of having peripheral awareness of the
other — instead it is the intentional act of harmonizing attention that
Drives this joint activity of mutual gazing.

In the case of the *Compatibility Racer*, a cart is set into motion and
its speed is controlled through a brain-computing interface (a pair
of EEG headsets and processing software) by two people anticipat-
ing and matching the expressions of the other person. This harmo-
nization from mutuality and synchrony works to enable both people
to act with vigilance relative to the other person’s signals (alerting,
orienting, detecting) which enables the two parties to direct each oth-
er’s attention in a mutual negotiation of signals toward synchrony
of attention and gesture, which then results in the cart being set in
motion as the interface finds matches between two people.

Attention is all about relationship: the relationship of the at-
tender to the object of attention, the relationships between signals
in the world as they differentiate themselves, and the relationships
between people as they coordinate attention. Your work will inher-
ently have some organizational structure that engages human
attention in some way, and your work may or may not succeed at
directing attention. Make your goal to design the elements of your
installation in ways that emphasize a particular system of attention.
Attention is a system and as the attention system operates, the different elements of that system will play their part in the operation, but you can build an experience that isolates one particular element of the system (like harmonization in the case of the Compatibility Racer). Attention has a working pattern in which different system elements are activated episodically; the alerting element is not always operating, only when something in the environment is acting as a salient stimuli, and then the mind begins to respond to that stimulus and moves on to another element of attention like orienting, or controlling. All of the systems of general attention work together on some level, but many elements are silent in the episodic working of attention. Our ability to focus follows a similar pattern: in order to focus on one thing, by necessity you have to ignore the others.

As you plan for using attention in your experience, determine what functions of attention are necessary for your context and goals. For Abramovic, it seems that switching and oscillating attention (the control element) were detrimental to establishing a mutually sustained gaze, and in terms of the Greater Attention System model, mere sharing of attention would have been a shallow failure of harmonized joint-attention. Removing obstacles to harmonized attention meant removing the options for switching and oscillating. Ensuring deep harmonized attention also meant finding ways to create an environment that made the presence of another person focally explicit rather than merely peripheral (as it is in most social settings). In the intersubjective interaction in The Artist Is Present, Abramovic created an environment that made the presence of the other person explicit by presenting patrons with a seat at a table across from her in the center of the gallery. Taking a seat at a table where someone else is sitting renders an explicit awareness of the seated person. It is markedly different from sitting next to a person on the bus where awareness only needs to be peripheral. Instead, walking to the center of the room where there is a single table with two facing chairs and someone sitting in the other chair is explicit and nothing distracts you from being aware of the other person while seated in that chair.

Abramovic removed other obstacles for harmonization by creating a scene in which people would not want to switch or oscillate their attention away from her. Abramovic was thus a magnet for undistracted attention, and several factors commanded this kind of attention:

- She created access to her body, person, and gaze (not normal public behavior).
- She created scarcity by having a show bound by time limits.
- She created sacred space by separating space into waiting and encounter areas.
- She gave value to people by giving them personal attention (acknowledgement).
- She broke social norms to look people in the eye.
- She created a transaction where people spent time in order to receive attention.
- People could not control their attention because the sincerity and personalization of her gaze would not let them switch and oscillate their attention elsewhere. To some people this was uncomfortable while other people found it engaging.

Take the overall goal of your experience and determine which elements of the experience can serve the attention goals that you have. What can be taken away? What must be taken away? What can remain? What must remain? This will begin to help you define the attentional underpinnings of your experience. Next ask yourself if there is any temporality or rhythm of time or sequencing to the flow of attention in the experience. Determine if there is a spatial structure to the flow of attention. Do the temporal flows and the spatial structures have any overlap?

In Abramovic’s work, the temporal flow of attention was significantly separated by spatial structure. While waiting in line people did not have eye contact with Marina and so they could oscillate and switch attention, they were onlookers or bystanders (not ratified participants in the mutual gaze). Possibly onlookers switched
between looking at Marina and looking at the person in the chair across from her. Possibly they oscillated between attending to the experience in the center of the room and to the length of the line ahead of them or behind them. Or possibly they were attending to their present situation of being in the gallery and then switched their awareness to plans they had for later in the day at work or at home. While standing in the line (which is outside of the sacred performance space), the patron onlookers saw two participants engaged in direct sustained attention. Importantly, once a patron crossed the boundary into the performance space, their attention became structured by that space for as long as they remained in that space. Oscillation and switching were removed as options by the purity of the experience of receiving direct eye contact and mutual joint-attention. The flow of attention differed vastly depending on spatial location.

While engineering your experience, if you can determine what distracts attention and what heightens attention, then you can chart a flow of attention that unfolds over time and in space. You will create a space that controls and directs attention as the patron moves throughout the space, and their attention becomes part of your toolbox for engineering (more on this in Chapter 4).

At this point, we shift back to notions of salience (or focal elements) and explore how a perceptual structure called figure-ground organization manifests itself in our perceptual and conceptual experience.

**Objects of Salience: When Things are Focal Points**

When something stands out against other things that fade into the background, it is what psychologists call a figure. The background is known as the ground. Figure-ground relationships are probably most familiar to people in the classic Gestalt image of two faces looking at each other where the negative space between them forms a vase. When you are focusing on the vase it is the figure. On the other hand, when your eyes switch to focus on the faces, they become the figure and the vase becomes the background. This oscillation between figure and ground is in fact an oscillation of attention and highlights in a simple way that attention is not a stable phenomenon—it is dynamic and active. Figure-ground organization is not a new idea in 2D art, but thinking about multi-sensory figure-ground organization in durational, and path-based works goes beyond using the concept for composing and critiquing static works. For those of you familiar with figure-ground structure, the new idea here is how this attention pattern occurs during the flow of attention to build up what we think of as experience.

Figure-ground structures enable attention to shift between awareness of the figure and awareness of the background: it’s an oscillation of attention. Oscillations of attention are useful points of entry for engaging an audience because they permit a kind of control of audience attention. In order to disrupt attention, alert an audience, and orient their attention, you merely need to create a new figure that disrupts and displaces the old figure. Pickpockets, thieves, illusionists, and con artists have known this for a very long time. Make something new stand out and take the place of what normally stands out in the scene. Think about how this happens in restaurants: all of the diners are sitting at tables facing each other quietly talking over their meals, and then all of a sudden, one of the staff drops a tray of dishes, shattering the glass with a crash. Do all of the diners continue with their conversation? Human tendency causes most people to turn around and look at the scene. This is because the sound of crashing dishes stands out from the relatively calm restaurant scene and it becomes a moment of salience in the attention of the diners. **Salience pulls people away from whatever is sustaining their attention and directs it to the disruption that created that moment of salience.**

To illustrate how banal that concept is, consider that you paid more attention to the last sentence because it was typed in bold and it disrupted the flow of the information by being different from the surrounding non-bolded text. A bold type font, when used in an otherwise non-bolded context blends form and function to create salience. Bold alerts readers to text that has conceptual impor-
stance. Bold fonts are used by writers to direct the attention of readers, and it works because it disrupts the pattern of non-bolded text.

This last idea is interesting because it means that we can intentionally create disruptions that capture and direct attention, and so these disruptions act as a kind of communication. Disruptions can work to communicate the intentions of the person who created them. When we use the direction of attention to indicate meaningful things to other people, attention enriches language and becomes a sort of perceptual language. Learning to use this language requires the following: awareness that attention is a system, the ability to appropriately disrupt attention, and the use of disruption that is tied to information that you intend to communicate.

Looking at this idea of using attention to mean something, a framework for joint-attention (attention shared between two people onto some third entity) helps to further equip your efforts in using attention in your engineered experiences. Joint-attention is a coordination between two or more people (e.g., you and your audience) and some third entity (object, concept, person, etc.) (Tomasello 2003, 21–28). Our capacity for joint attention emerges in childhood as we learn to understand that someone else intends for us to share attention with them onto some other entity, and we use this capacity throughout our adult life to learn what people mean for us when we don’t understand what is going on around us. We use joint-attention to make meaning for and with each other, and it is through this process that we can create situations that enable people to attend to something we mean for them to comprehend or experience. Taking these ideas in line with the notions of joint activities, a more detailed picture emerges on how the skillful coordination of behavior and attention help to build meaning-making elements into the architecture of an engineered experience.

**Environments of Non-Salience: Ambient Scenes and Grounds**

Backgrounds are just as important as focal points, not just because they enable focal points to stand out, but because they communicate something about the scene whether it is the mood, the context, or a collection of potentially active but not yet salient elements in a complex scene. Some immersive environments bombard the participant with one figure after another figure in rapid succession such that attention is being called upon continually through alerting. Ambient environments are different: they are grounding environments where the focus is less on what creates the ambient environment and more about the feeling that the environment evokes. Think of it like the way that Impressionism tried to recapture the ambient qualities of reality in paintings as a response to the matter-of-factness of photography. In our case, creating ambient environments is kind of like Impressionism for real life experiences instead of paintings.

The immersive sensory texture of an installation qualifies as ambient when the subject of the work are the sensory stimuli themselves acting as contextual surroundings. Ambient in this sense contrasts with object-based work.

Ambient environments can serve a rhetorical function, such as when they act as the background for some other salient commu-

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**Table 2. Sensory-Based Figure-Ground Structure.**

<table>
<thead>
<tr>
<th>Figure</th>
<th>Ground</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Visual</strong></td>
<td>movement</td>
</tr>
<tr>
<td></td>
<td>generally smaller</td>
</tr>
<tr>
<td></td>
<td>simpler in visual field or less complex than background</td>
</tr>
<tr>
<td><strong>Auditory</strong></td>
<td>new sound</td>
</tr>
<tr>
<td></td>
<td>contrasting silence</td>
</tr>
<tr>
<td><strong>Tactile</strong></td>
<td>new texture</td>
</tr>
<tr>
<td></td>
<td>discontinuity</td>
</tr>
<tr>
<td><strong>Olfactory</strong></td>
<td>new smell</td>
</tr>
<tr>
<td></td>
<td>contrasting offensive smell</td>
</tr>
<tr>
<td></td>
<td>contrasting pleasant smell</td>
</tr>
<tr>
<td><strong>Taste</strong></td>
<td>first bite</td>
</tr>
<tr>
<td></td>
<td>new flavor</td>
</tr>
<tr>
<td></td>
<td>pleasant / unpleasant flavor</td>
</tr>
<tr>
<td><strong>Temporal</strong></td>
<td>new event</td>
</tr>
<tr>
<td></td>
<td>state change / new state</td>
</tr>
<tr>
<td><strong>Spatial</strong></td>
<td>new environment</td>
</tr>
<tr>
<td></td>
<td>new spatial arrangement</td>
</tr>
</tbody>
</table>

- stasis
- generally larger
- complex or made up of many layers in visual field
- background noise
- background silence
- repeating sounds
- continuity of texture
- pervasive smell
- background smell
- lack of smell
- successive bites
- background flavor
- no taste
- habitual event
- continuity of state
- habitual environment
- stable spatial arrangement
unication channel, such as performance art, dance, or theater; the environment can tell you something about that specific event and it defines some of the meaning of that event by controlling how you experience that event. When this happens, we think of the ambient environment as establishing the atmosphere or the vibe of an experience, and ambience is an active product of a rhetorical ambient environment.

Ambient environments can also exist on their own without supporting any particular performance at all. When the environment is the work itself, what would normally be background information becomes the primary information. The background is the entire message that is being communicated and so it becomes salient while you actively engage the ambient experience as a figural object. In those cases, the ambient environment is not the background, but the foreground. It is not being used as a ground but as a figure, and this produces moments of contemplation on the environmental conditions presented in the ambient scene.

**What Makes a Figure and a Ground?**

Talmy (2001) outlined a framework for observing how figure-ground relations in conceptualization and perceptual systems show up in language. Because language is a window into the mind, this model is not limited to language and is useful for visual perception and other sensory-perceptual, spatial, temporal, and cultural modalities. This makes his model particularly useful for the types of engineering activities described in this book.

Talmy argues (2001, 315–16) that primary objects (i.e., figures) are smaller, more mobile, simpler in terms of geometry, more recent in awareness, more important, more relevant, and less immediately perceivable (probably because of their size), but more salient when they finally are perceived. He describes them as more dependent, and claims that their spatial and temporal properties are unknown — by which he means it is an unanchored entity in space and time. He then outlines the characteristics of secondary objects (i.e., grounds) which are near opposites of the figure characteristics, indicating that they are larger, less mobile, more permanent, more complex in terms of geometry, less recent in awareness (presumably as older information), less relevant, more immediately perceivable, more independent, and have known spatial and temporal properties that render the ground as a reference to make sense out of the figure’s unknown properties — in essence, the ground as the known and obvious entity anchors the figure with its to-be-determined meaningfulness in relationship to the ground.

Figure-ground organization occurs in all types of sensory experience (haptic, visual, auditory, olfactory, gustatory and sensorimotor) (Table 2). It also structures our sense of time and space, the way we feel, the way we speak, and the way we organize information. In all of these types of experiences, the figure is the point of salience and it is contrasted against elements in the background. Calling attention to something is merely a matter of making everything else less interesting so that the element you want to be salient seems like the most interesting thing relative to the other stimuli. In other words, following Talmy, what you want to stand out becomes salient when you can make it more relevant, more obvious, simpler, and fresher than everything else. At its heart, figure-ground organization is simply a separation of noise and signal. You could say that the act of something becoming salient is the result of the relationship between the ground and the spatial and temporal properties of the figure becoming known by the perceiver.

The flow of attention is cinematic. Rhythms of information flow and the modulation of attention cause figure-ground organization to constantly shift, such that, as you move through a space, what you notice as figure is constantly disappearing in your line of sight as new figures present themselves in the visual field. Think about driving a car and noticing someone’s stupid vanity license plate in front of you, but then you drive past them and notice some roadkill on the side of the road, or a cop hiding behind some bushes, or you see your exit. As you drove past the driver with the stupid vanity license plate, you came to attend to other details along the stretch of road. That stupid vanity license plate which was momentarily a
salient figure faded into the background and it was no longer even a ground: it was just gone. But suppose later you notice another vanity license plate and this one stands out to you because it really is pretty clever, even though you don’t typically find license plates interesting: as you remember back through all of the stupid vanity license plates that you have seen, this one that you are focusing on because it is pretty clever becomes figural against the ground of all the other stupid plates that are not actively in your focus. We can have figures in our memory that stand out from the ground of the visual field even though they are mental imagery (this becomes useful when designing path-based experiences).

**Sensory, Spatial, and Temporal Salience**

Our senses and notions of space and time also organize along figure-ground structures. Table 2 suggests some of the distinctions between figures and grounds, but it is not exhaustive (Table 2 sets the groundwork for Tables 3, 4, and 6).

This idea of figures standing out from grounds in sensory and spatial-temporal streams is useful in capturing attention within a work, much like a foreground element in a photograph may stand out from the background and capture the attention of viewers in a particular way. But this static figure-ground relationship needs to be animated in order to be meaningful in a sustained experience. In the same way that photography evolved into film by sequencing a series of images in succession, dimensional works eventually developed into durational works and installation which involves paths through an exhibit and the linking succession of movements in the exhibit which correlate with photographic stills in a motion picture.

In these path-based and time-based works, viewers experience the exhibit in ways that are similar to the movie camera capturing footage as it moves through the set and scene. Viewers see a flow of information, and that flow of information is made up of different scenes, each of which have their own figure-ground organization. As the collection of scenes is encountered through the camera’s movement, or through the viewer’s movement through the scenes, many salient figures enter the scene in succession and they stand out from the background, even as the background changes as a result of the camera or the viewer moving into a new environment. It is this viewer-centric approach to attention that makes figure-ground relationships so important to understand. Viewers move through installations at their own paces, with their own goals, motivations, and interest levels. It is vital to think of viewer experience as cinematic where the viewer is the camera and the experience is the film.

There is always variation in viewer attention spans as well as variation in bodily structure. Everyone is a different height, some people are exhausted from a busy day on their feet, some people have to go to the bathroom and so they’re distracted or rushed, and so on. Otherwise observant people might be more interested in the date they brought to the museum, or maybe the gallery happens to be the backdrop for some business entertaining potential clients, and nobody really cares about art at all.

You can’t write a book that answers all of the critiques that people will throw at it, and in the same way, you can’t make an installation that appeals to everyone that experiences it. That means you need to understand how to layer attention in the exhibit for multiple types of people. Just like a good non-fiction book is accessible to novices and experts, aim to layer your installation to appeal to a continuum of types of potential experiencers: accidental experiencers, casual experiencers, intentional experiencers, disinterested experiencers, and unaware experiencers.

Let’s get back to the idea of the flow of attention—specifically, how figures and grounds sequence in events and extended periods of time. Things stand out in time, and a rhythmic nature of figure-ground relationships can be understood as a way to organize temporal experience into a flow.

Figure-ground patterns happen in our experience of time. For example, when you go on vacation to Paris and stay in a hotel, the hotel becomes a sort of base-camp for your exploration of the city. You wake up and leave the hotel and visit la tour Eiffel. You come back to the hotel after your visit for a moment and perhaps go out
for dinner soon after only to return back to the hotel for the night. In the morning, you leave the hotel and walk down the Champs-Élysées to see the Arc de Triomphe, to visit the Louvre, then you go back to the hotel. The next day you walk along the Seine and take a class in French cooking at a cooking school, then you go back to the hotel. Each day your experience of Paris begins and ends with your experience of the hotel and this acts to stabilize the trip as you experience the “highlights” of the trip. The hotel is the stable constant ground that helps to make the day trips into memorable figures. There is a frequency to the flow of the trip and the hotel is the baseline, and each separate event is a peak that spikes away from the baseline before returning to the baseline again, much like the peaks of a waveform readout of a heart rate monitor—the exciting things make the peaks, and the everyday steady state is the baseline.

Over the course of a Paris vacation experience, this back and forth temporal ground increases task-oriented salience on the elements that are different (figures) and it decreases attentional structure on the hotel (ground). This effect has been observed in tourist descriptions of an experience, identifying differences in simulated motion based on whether the descriptions are of habitual (hotel) or institutional (tourist sites) settings (Dewey 2012). Without stretching this too far, it is possible that this kind of figure-ground oscillation in our daily schedule affects how we think about spaces and affects how we describe our experiences. In other words, how we understand an experience may be linked to the figure-ground relationships that exist in that experience. Going on that assumption, it seems reasonable that perhaps these time-based figure-ground relationships in long-durational events (like vacations) also structure shorter events (like a gallery visit).

In the engineered experience, providing a stable element throughout the experience can act as a ground that helps people increase task-oriented attention on figures. Figures that are created using time-based organization can build a rhythm, which might be used for multiple purposes such that, in your designed experience, a given location in time can also provide an emotional trigger, solicit audience engagement, or provide some sensory data that characterizes that moment in time with a sensory anchor, such as a particular smell or a color.

Unless you are trying to build a background ambient feeling, you want to put the meaningful elements of an experience in the temporal and spatial figures because that is where they will be noticed.

If figure-ground organization occurs in how people make sense out of experiences, and if it can be seen to stem from where people spend their time, then in designing experiences, time-based figures should be moments that are paired with the meaningful elements of the experience (like triggers, decision points, knowledge transfer, narrative advancing devices, memory anchors, etc.). Time-based grounds should be the stable contextual structure of the experience providing the background and contrast to the figures, establishing more salience on the figures by blending into the background. In an engineered experience the time-based ground accounts for what people do most of the time during the experience. The time-based figures point out what people only do infrequently during their experience. Make the most of temporal figures by designing them to be moments of intensity in the experience because their intensity will cause them to stand out.

The Rule of Thirds: Our Common Ground
Some things stand out because of their inherent properties and contexts, some things stand out because people want them to stand out or design them to stand out, but there is a cultural element that also causes things to stand out. We also attend to things because they are part of culturally-learned visual aesthetic preferences. Consider the Rule of Thirds where a visual scene (e.g., a photograph) is divided into a grid with four intersecting lines and the preferred location for a subject that you intend to stand out is wherever two of the lines cross. These intersections turn a subject
into a point of salience, and that salience is a separation of a figure from a broader ground.

The Rule of Thirds is a critical element of sensory composition as you design and hack into experience. And if you think about experience design like a film (which is basically a sequence of still images) the rule of thirds makes itself useful as you design the individual moments or snapshots of the experience.

We’re using the Rule of Thirds in this book as one of the connection points that bridge between art and science. It’s a tool that perceptual science and artists both make use of in their different approaches to studying and exploring perception. The Rule of Thirds is a culturally derived method of composition, there is nothing inherently “correct” about it. Some people argue that perception naturally organizes according to the rule of thirds because it is something we are born with. This is enticing, but other people argue that instead of being born with this ability, we’ve evolved culturally to prefer the Rule of Thirds in visual works. Whether or not the rule of thirds is innate doesn’t change the fact that we use the rule of thirds now and it helps us to see (without thinking about it) what the artist or photographer wanted us to see as salient. In this way, the Rule of Thirds is a rhetorical device to make meaning, kind of like a label that says, “this is what I want you to experience as important,” and you see it and it makes sense to you.

Western culture has used the Rule of Thirds to make certain things stand out in visual structure. This is an information-structuring device that Western audiences are particularly aware of in the way they consume visual information. Whether or not the Rule of Thirds is universal is still out for debate. However, a universal audience encountering your use of the rule of thirds as the structural armature of the experience you design will certainly evoke a variety of perspectives on your designed experience, and that is good because it makes your experience interesting and engaging.

If you are not familiar with the Rule of Thirds, perhaps you are familiar with the idea of a grid (Figure 3) being laid over an image. When you lay a grid over an image, the salience is often located a third of the way from the left and a third of the way from the bottom of the image. This is a way of establishing a kind of visual harmony in the image. But salience can happen in other places in the grid, as it works in any of the intersections marked with an x in the grid (Figure 4).

You can apply the Rule of Thirds to more of the world than just visual imagery. The Rule of Thirds provides a level of common ground that we can use to hack into experience by placing interventions in sequences that follow the rhythm of the Rule of Thirds in non-visual space. The Rule of Thirds is a spatial rhythm and provides a kind of timing for the sequencing of information in many domains. Because it is a sequence, if it is a sequence of the right kind of information (i.e., presented using figure-ground organization), then the Rule of Thirds can apply equally well in the other sensory domains (sound, taste, touch, smell) as well as space, time, and even narrative. In fact, it is a way to point out figures and grounds in the sensory composition of a designed experience.

Since this is a rhythm, it might be easiest to demonstrate the applicability of the Rule of Thirds to music which is a blend of sound and time. Divide a given piece of music into four segments of time. The third segment of time will probably feature some kind of discernible musical change (e.g., possibly a key change, possibly a shift in tempo, possibly a lyrical shift or a new voice entering the song). Some music does this because that’s how it has always been...
done. Other music does this because it blends form and function to leveraging a moment in which the listener is expecting to hear one musical statement, but then is surprised by hearing a new statement. Even the most basic song like Happy Birthday does this with a key change, tempo change, and change in inflection during the third phrase, “Happy Birthday, dear Jacques.” So the Rule of Thirds is one way to build up anticipation. The music means something for the listener at that moment. “Hey, pay attention, we’re climaxing here.”

At the beginning of certain types of classical music, the musical statement stands out from silence. The first quarter of a piece of music is all new. But then some of the themes repeat themselves in the second quarter and the theme begins to fade into the background. Once the theme is in the background, something new can come onto the scene and stand out in contrast against that background as a salient figure in the third quarter (following the Rule of Thirds). Often the music returns to repeat the original theme in the fourth quarter. In pop music the Rule of Thirds appears this way: the song begins with the first verse in the first quarter, then moves into the chorus in the second quarter, and repeats. Then the unexpected break in the pattern occurs with the bridge, before moving into the fourth quarter, which repeats verses and/or the chorus. David Bowie’s song “Golden Years” does this particularly well, especially considering the repetition of the second chorus as the fourth quarter, just after the bridge.

Consider literature. Grab a fiction book and find the pages that are in the third quarter of the book. In traditional narrative structures, very likely this third quarter coincides with the climax of the narrative arc. In some sense, this can be seen in the Bible when Jesus Christ enters the scene in the third act (or three quarters of the way through the book). (For more on this pacing of information, see Chapter 5.)

You can apply this same Rule of Thirds sequencing in the other sensory domains to make certain things stand out in the designed experience. You will hack into participant experience by subtly borrowing a familiar frame of salience from visual culture and adapting it into some other sensory system.

Figure 4. Salience in the Rule of Thirds.