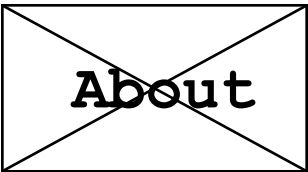
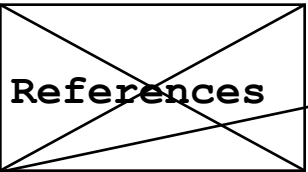


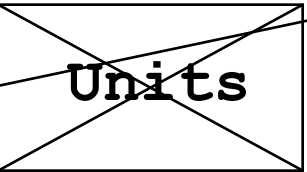
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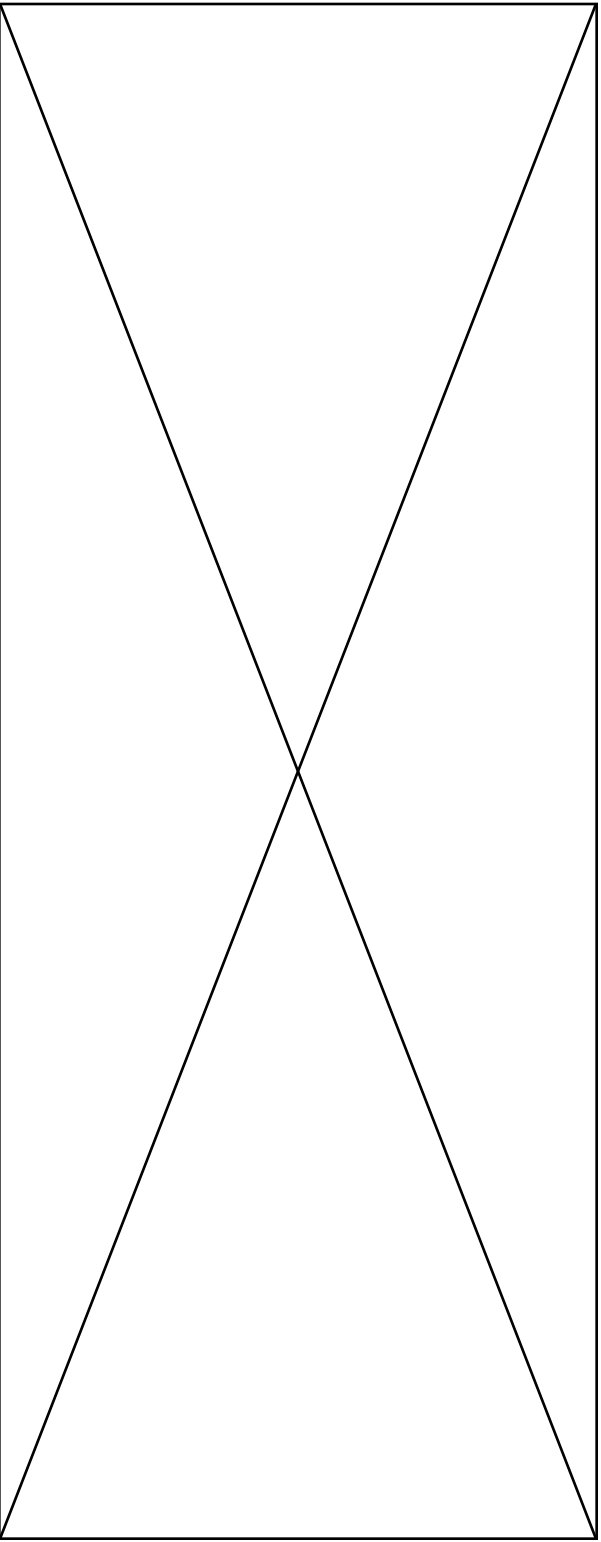
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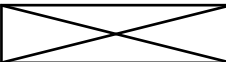
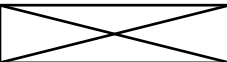
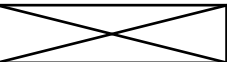


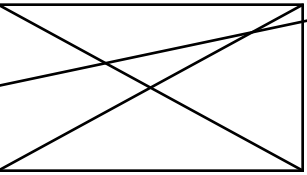
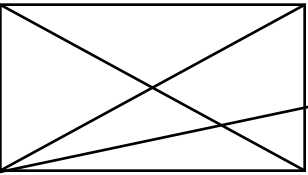
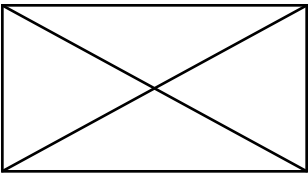
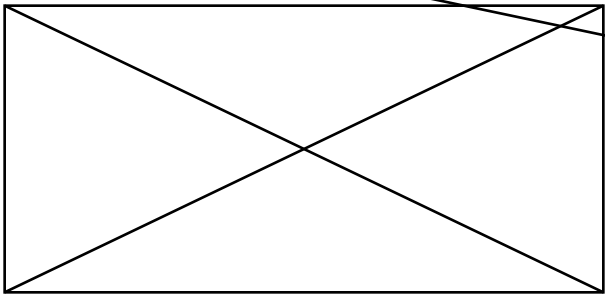
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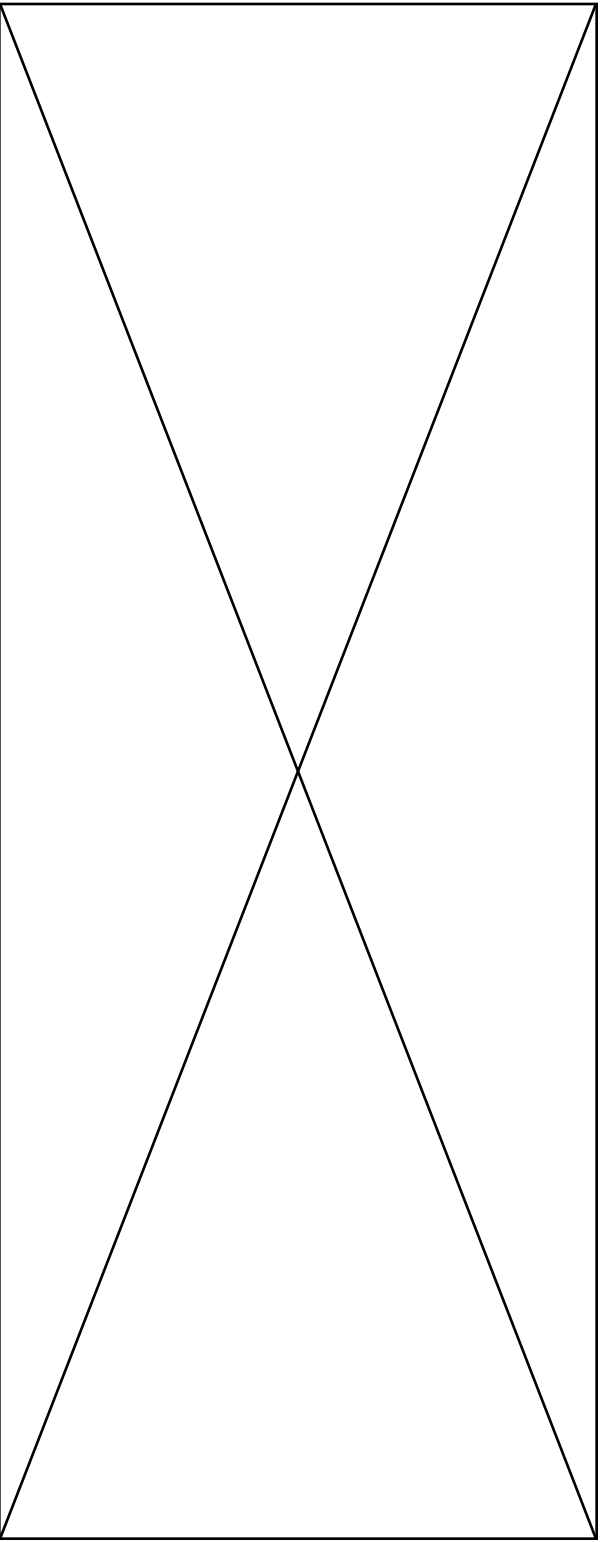
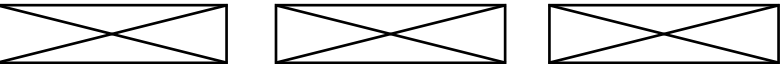


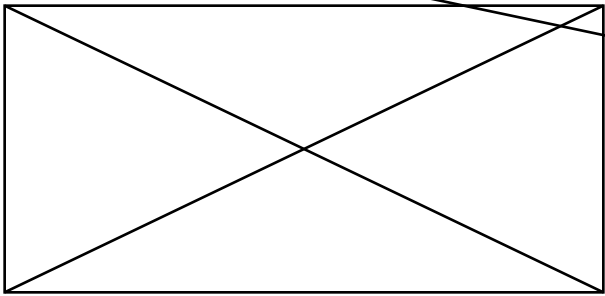


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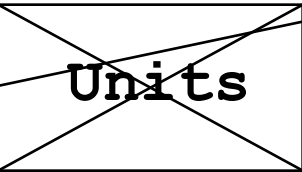
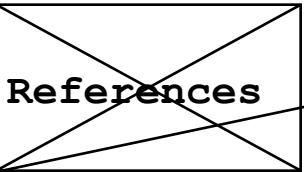
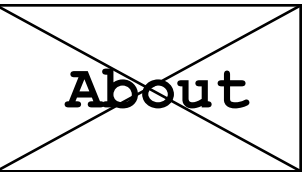
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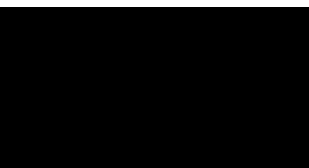
Color scheme for graphics, mark up colors



Web colors /secondary colours of the RGB colour
+ rich colors
+ great for monitors



Also it’s great for graphics!
- not good for prints

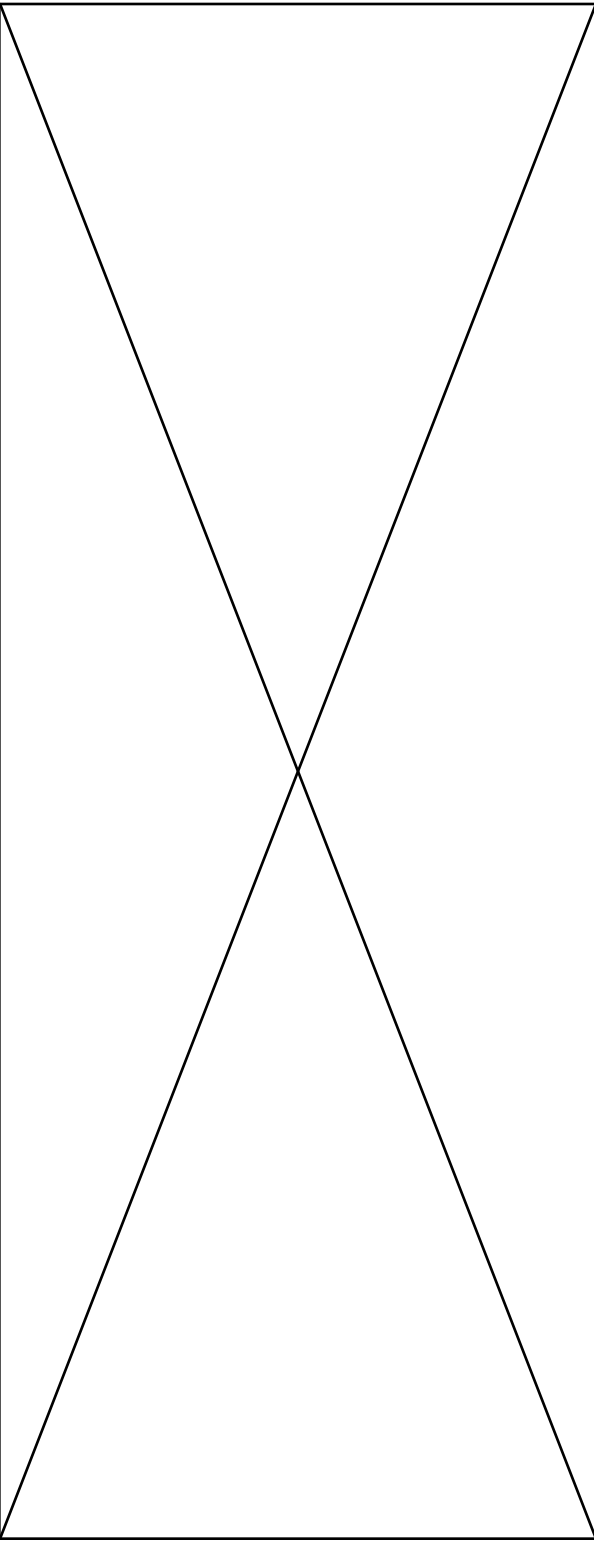
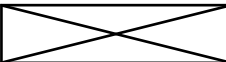
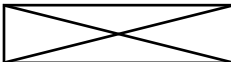
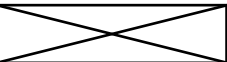


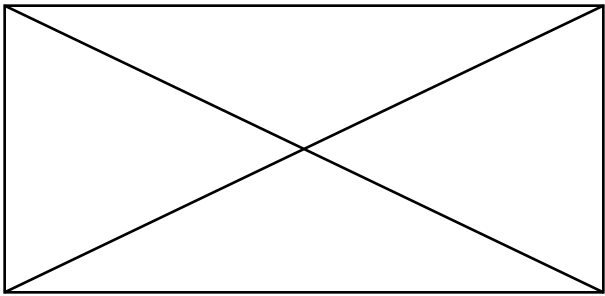
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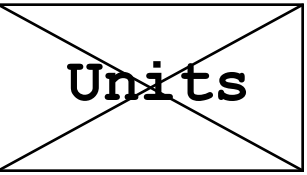
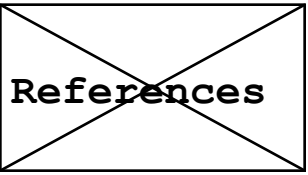
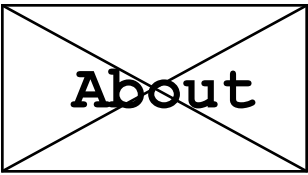
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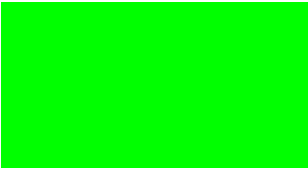
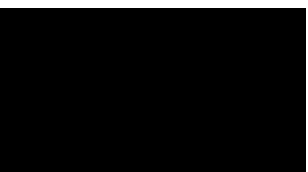
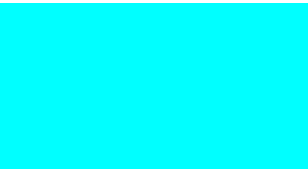


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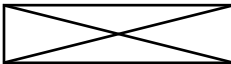
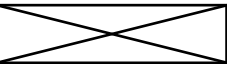
AUTHORS: PSYCHE LOUI, JOHN MACCALLUM
SUMMARY: RHYTHM, METER, COUPLED OSCIL-
LATORS, NEURONAL ENTRAINMENT
TOPICS: TOPIC 1, TOPIC 2

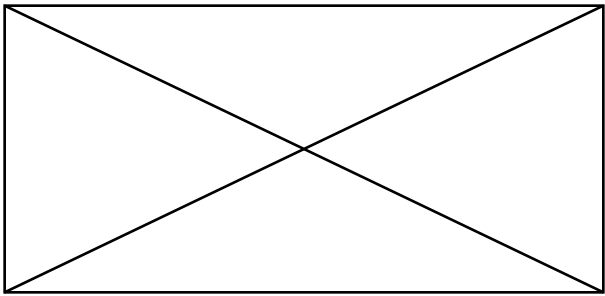
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UNIT 0: RHYTHM

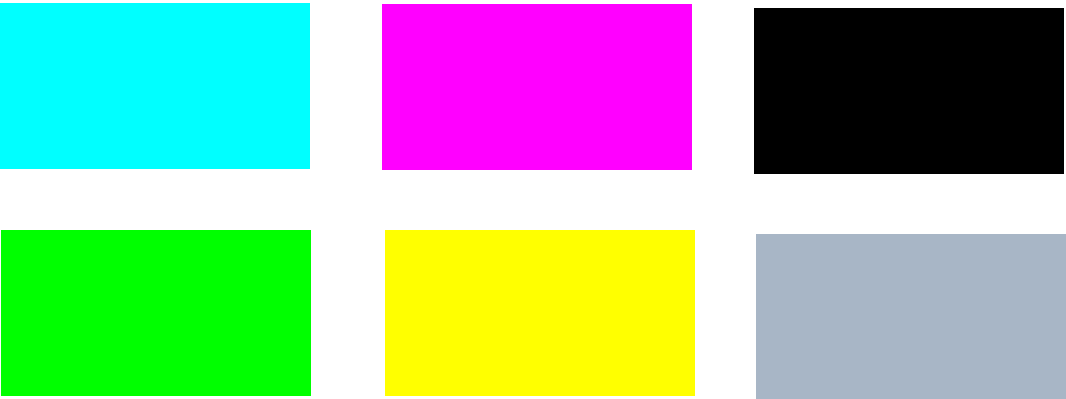
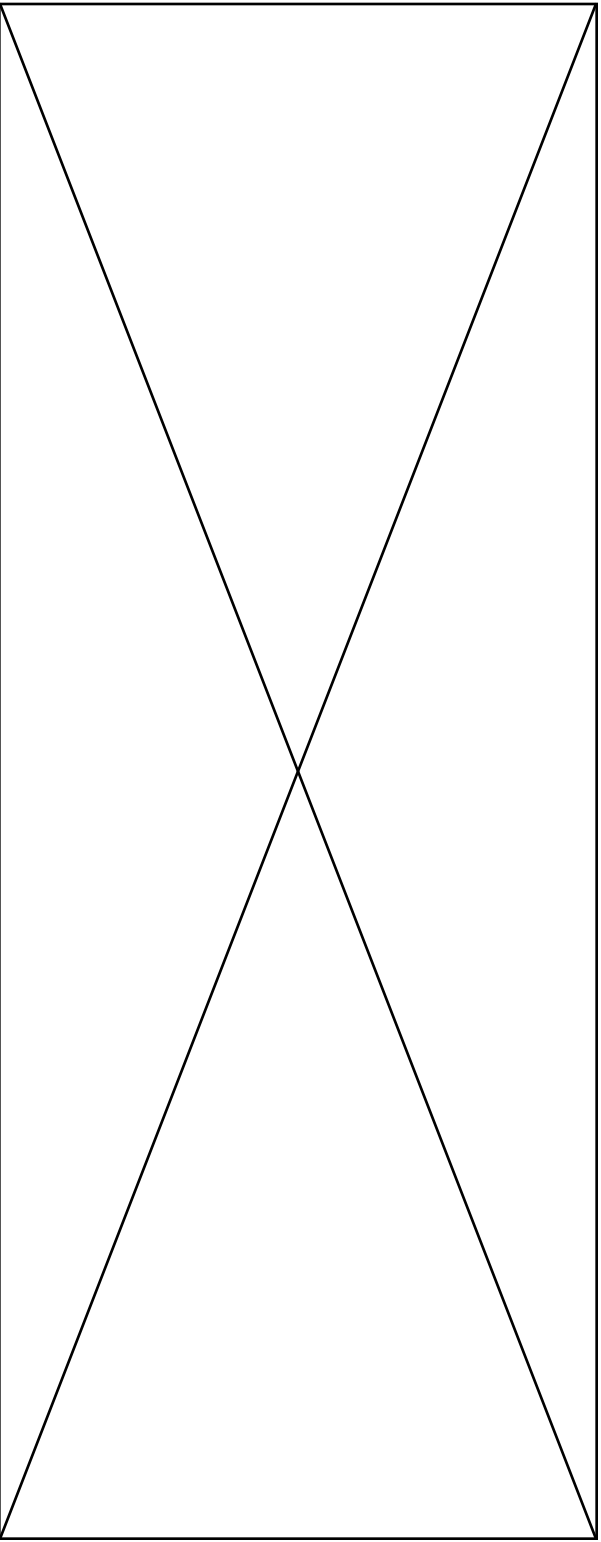
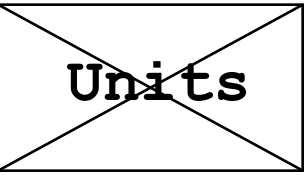
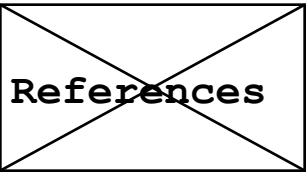
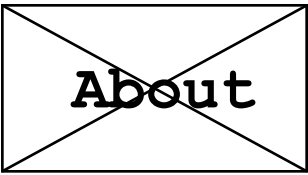
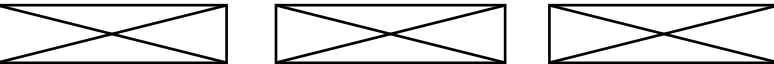
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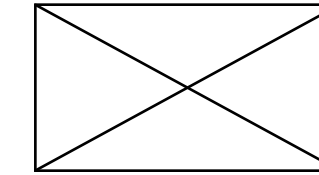
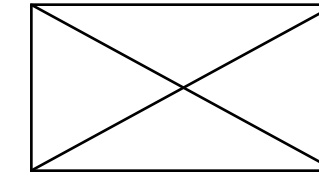
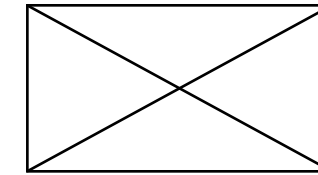
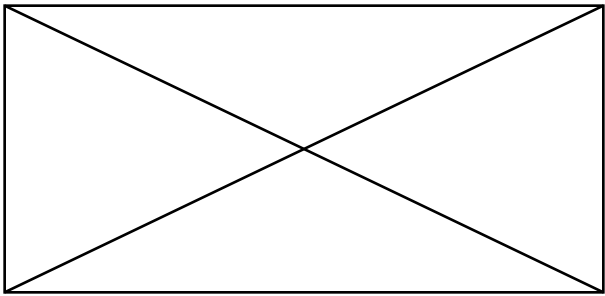
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If it’s possible maybe the info about
authors, summary content etc will hide
(like a fold up behind the line unter
„unit 0..“) by a mouseover or scrolling
down? Then the main content comes up?



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UNIT 0: RHYTHM

<- author, summary hides here? (not sure)

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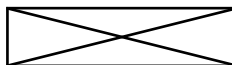
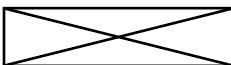
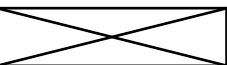
attack sync-ss

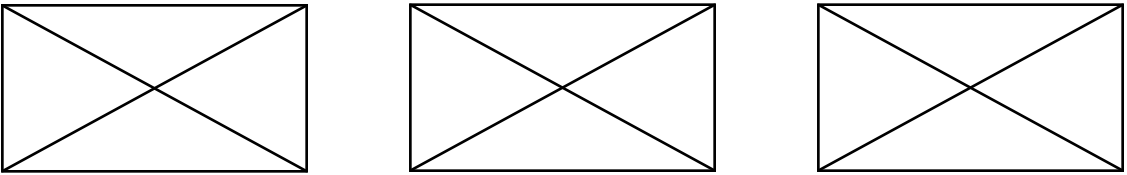
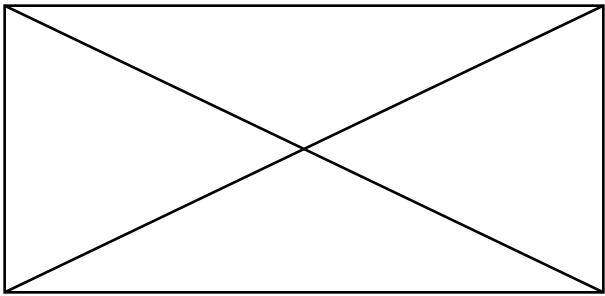
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<- not sure where to put the arrow.





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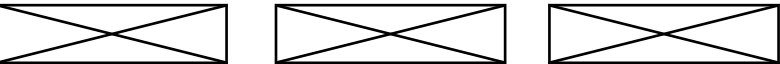
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attack sync-ss <- secondary colour of the RGB colour **scheme as a highlight color**

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Maybe here is also a good place for summary, author etc ->

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PSYCHE LOUI
JOHN MACCALLUM

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COUPLED OSCILLATORS,
NEURONAL ENTRAINMENT

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[attack sync-ss](#)

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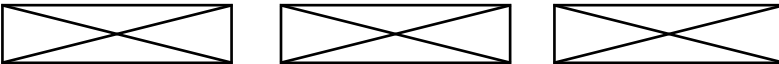
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attack sync-ss

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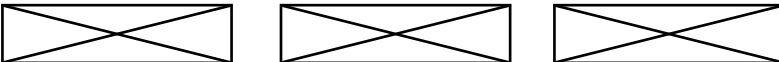
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1. Rhythm

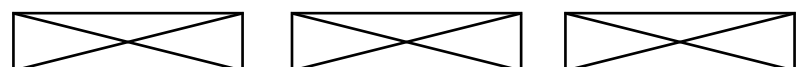
1.1 Introduction

While pitch has received the most attention in perception research, whereas most of music theory consists of putting pitches together to form harmonies, relatively little of common-practice Western musical theory addresses rhythm. Here we define rhythm as the pattern of temporal durations, especially in music. In this unit we will examine the perception and cognition of rhythm. We will begin with the basic observations, e.g. what the optimal range of rhythm and meter are, and how rhythmic subdivisions and expressive timing occur. Then we will discuss the various representations of rhythm, somewhat analogous to visual representations of pitch covered in Unit 5. Finally we will talk about models of rhythm perception and production, and bring in existing literature in an attempt to explain the temporal regularities and deviations that give rise to the human sense of rhythm.

It is important to make a distinction between the temporal envelope, the attack portion of which we usually consider to be the beginning of the sound, and the perceptual onset of a sound. In the case of a percussive sound made by a bell or a piano for example, the attack is nearly instantaneous, while other instruments like violins and clarinets have a variety of attacks at their disposal which can make it difficult pinpoint the onset of their sound. Attacks that last less than 30ms tend to sound percussive, while attacks that are longer than 30ms are more like those of a bowed instrument. In the demo called attack-sync, you will hear two sounds, one with a long attack and one with a short percussive attack. When you start the patch, the two sounds will begin together, although, as you will notice, the one with the longer attack will appear to start later. See if you can adjust the start times such that they appear to start isochronously.

attack sync-ss

The optimal range of tempo encoding occurs between 300ms and 1500ms. This is known as the zone of temporal integration, or the tactus. What happens when rhythmic durations are way above tactus? It turns out we subdivide. Subdivision refers to the breaking down of large units into usually even-sized smaller units. In the rhythmic sense the brain is performing chunking, and also building a hierarchical structure of rhythm. As in the frequency dimension for pitch and harmony (see units 5 and 8), small-integer ratios in time play important



Unit 6: title of the unit

S:

- Perceptual Onset Vs Temporal Envelope
- Subdivision
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- Tatum
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- Score Time Vs Performance Time
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- SUMMARY
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- Links and Downloads
- QUIZ ITEMS
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mouseover: bold typo ->

UNIT 0: RHYTHM

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good for orientation
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1. Rhythm

1.1 Introduction

Tactus Tatum Accents And Event Stream Vectors Microtiming And Expressive Timing Time Maps Score Time Vs Performance Time Rhythmogram Models Of Rhythm Perception Interval Timing Covariance Model Coupled Oscillator Summary References Links and Downloads Quiz Items

While pitch has received the most attention in perception research, whereas most of music theory consists of putting pitches together to form harmonies, relatively little of common-practice Western musical theory addresses rhythm. Here we define rhythm as the pattern of temporal durations, especially in music. In this unit we will examine the perception and cognition of rhythm. We will begin with the basic observations, e.g. what the optimal range of rhythm and meter are, and how rhythmic subdivisions and expressive timing occur. Then we will discuss the various representations of rhythm, somewhat analogous to visual representations of pitch covered in Unit 5. Finally we will talk about models of rhythm perception and production, and bring in existing literature in an attempt to explain the temporal regularities and deviations that give rise to the human sense of rhythm.

1.2 Perceptual Onset Vs Temporal Envelope

It is important to make a distinction between the temporal envelope, the attack portion of which we usually consider to be the beginning of the sound, and the perceptual onset of a sound. In the case of a percussive sound made by a bell or a piano for example, the attack is nearly instantaneous, while other instruments like violins and clarinets have a variety of attacks at their disposal which can make it difficult pinpoint the onset of their sound. Attacks that last less than 30ms tend to sound percussive, while attacks that are longer than 30ms are more like those of a bowed instrument. In the demo called attack-sync, you will hear two sounds, one with a long attack and one with a short percussive attack. When you start the patch, the two sounds will begin together, although, as you will notice, the one with the longer attack will appear to start later. See if you can adjust the start times such that they appear to start isochronously.

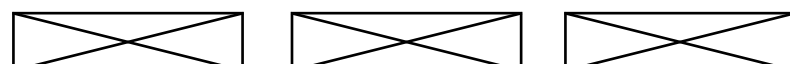
attack sync-ss

1.3 Subdivision

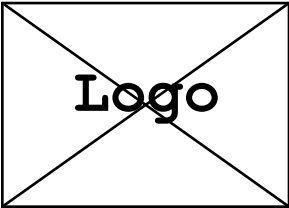
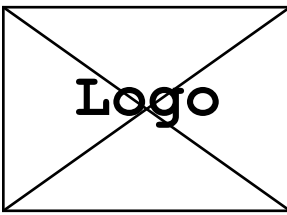
The optimal range of tempo encoding occurs between 300ms and 1500ms. This is known as the zone of temporal integration, or the tactus. What happens when rhythmic durations are way above tactus? It turns out we subdivide. Subdivision refers to the breaking down of large units into usually even-sized smaller units. In the rhythmic sense the brain is performing chunking, and also building a hierarchical structure of rhythm. As in the frequency dimension for pitch and harmony (see units 5 and 8), small-integer ratios in time play important

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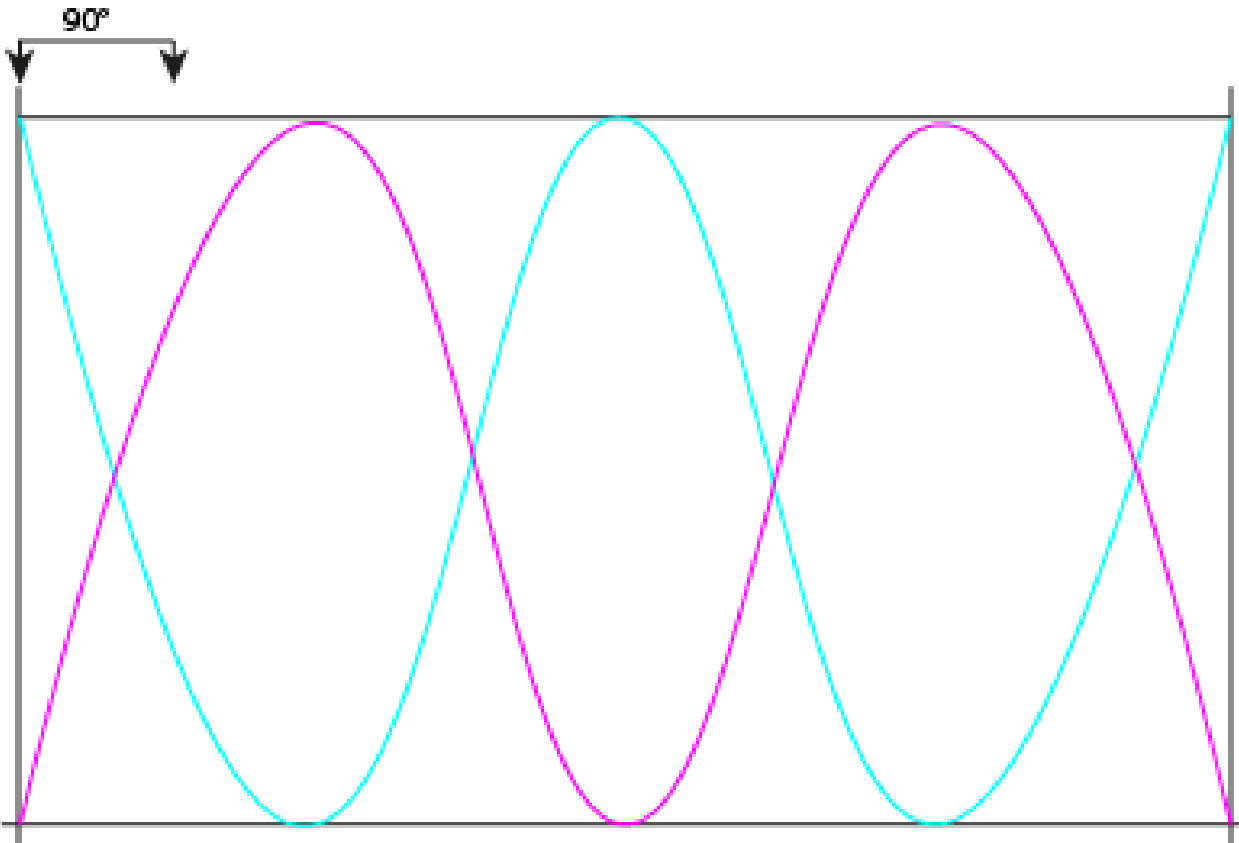
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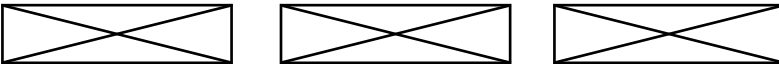
UNIT 0: RHYTHM

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Description: This is an example for using the highlight colors in graphics



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SUMMARY

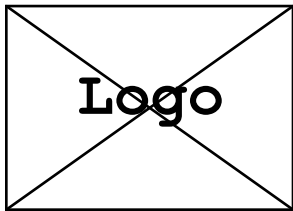
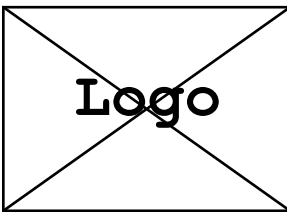
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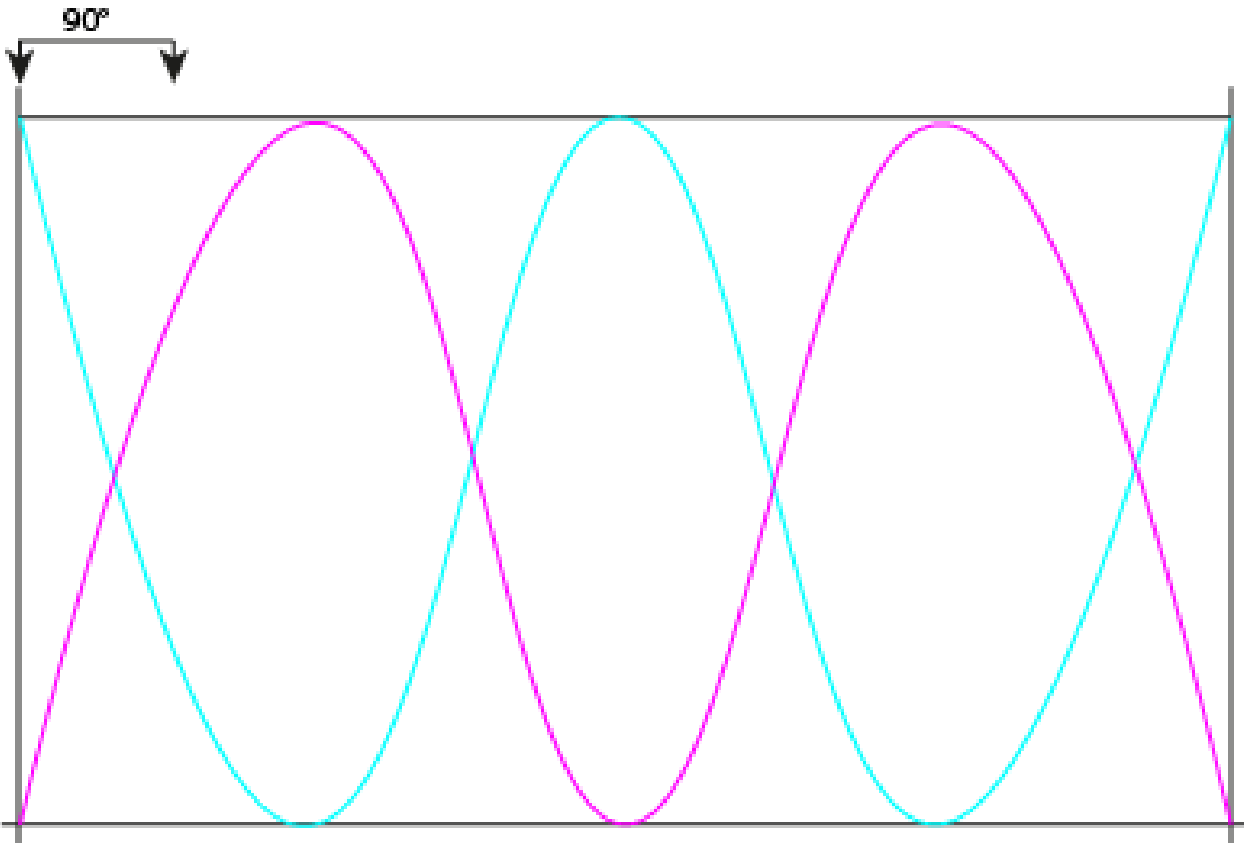
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UNIT 0: RHYTHM

1.3 Subdivision

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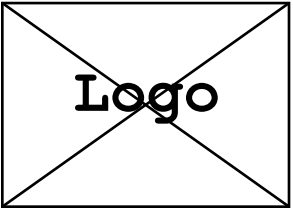
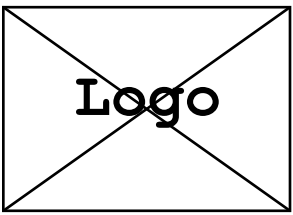
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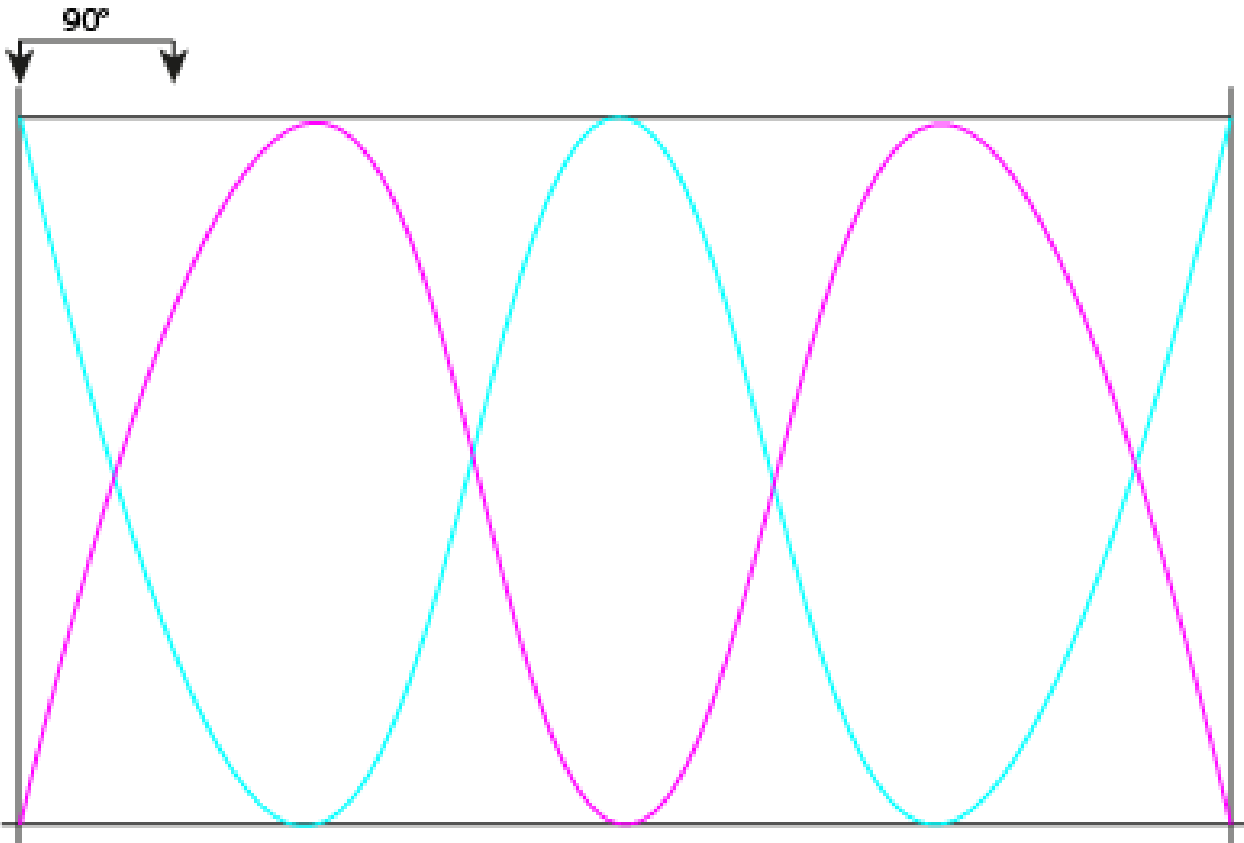
UNIT 0: RHYTHM

1.3 Subdivision

The optimal range of tempo encoding occurs between 300ms and 1500ms. Durations that are way above tactus? It turns out we subdivide. Subdivision refers to grouping rhythmic events into chunks, or chunking, and also building a hierarchical structure of rhythm. As a result, chunking plays a role in rhythmic perception. Most rhythmic subdivisions consist of 2:1 ratios. For example, in African, Cuban and Brazilian rhythms, employ more complex rhythmic patterns, but they are still based on 2:1 ratios.

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- Unit 1: Auditory and stimulus
- Unit 2: auditory and system
- Unit 3: Title of the unit
- Unit 4: Title of the unit
- Unit 5: Pitch, intervals and key areas
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- Unit 2: Auditory and system
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- Unitt 4: Title of the unit
- Unit 5: Pitch, intervals and key areas
- Unit 6: title of the unit

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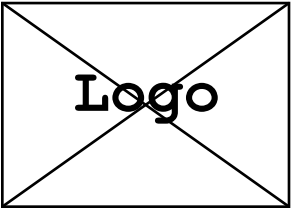
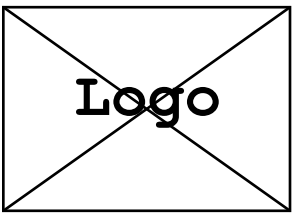
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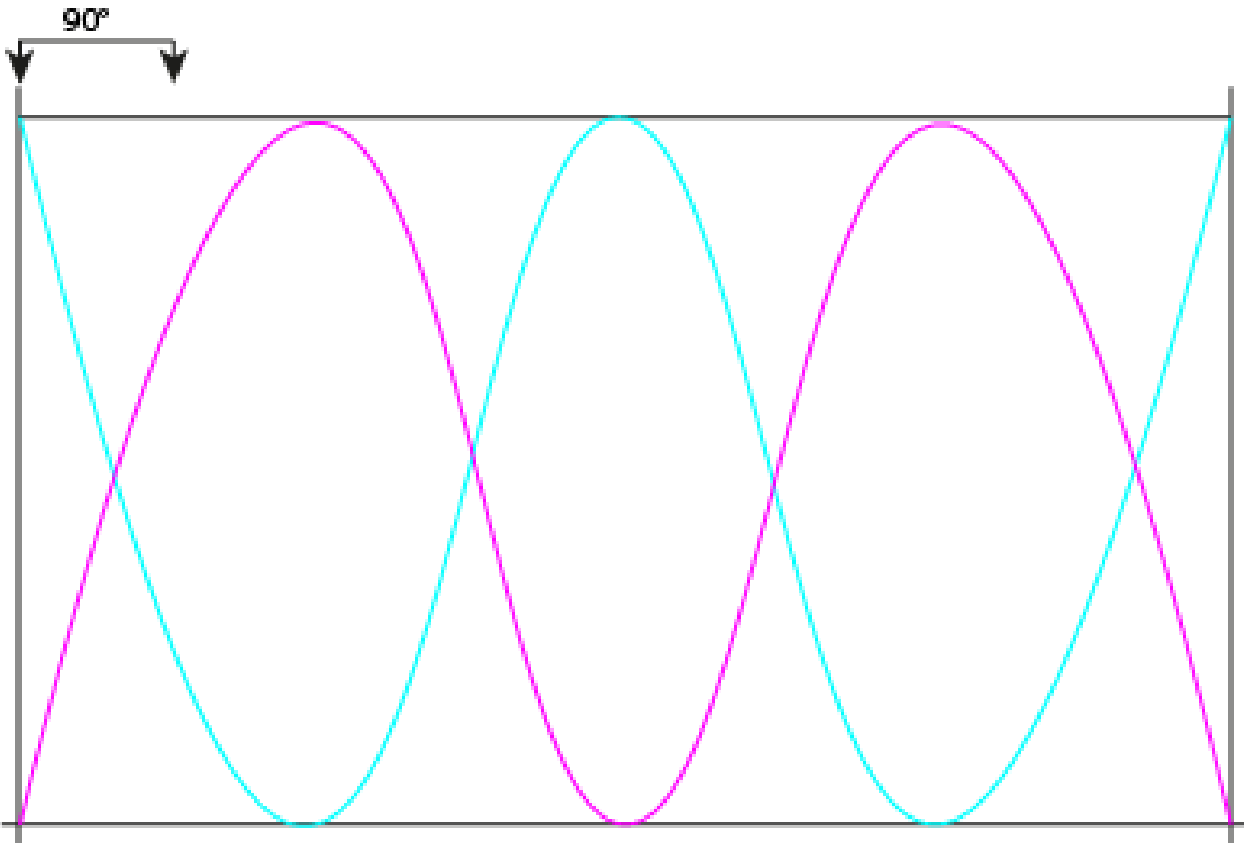
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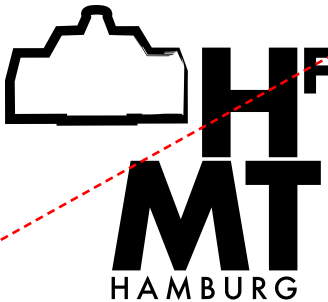
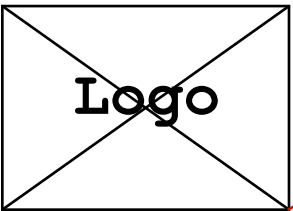
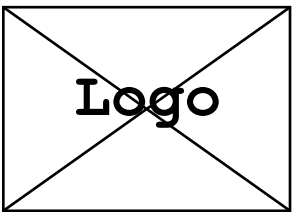
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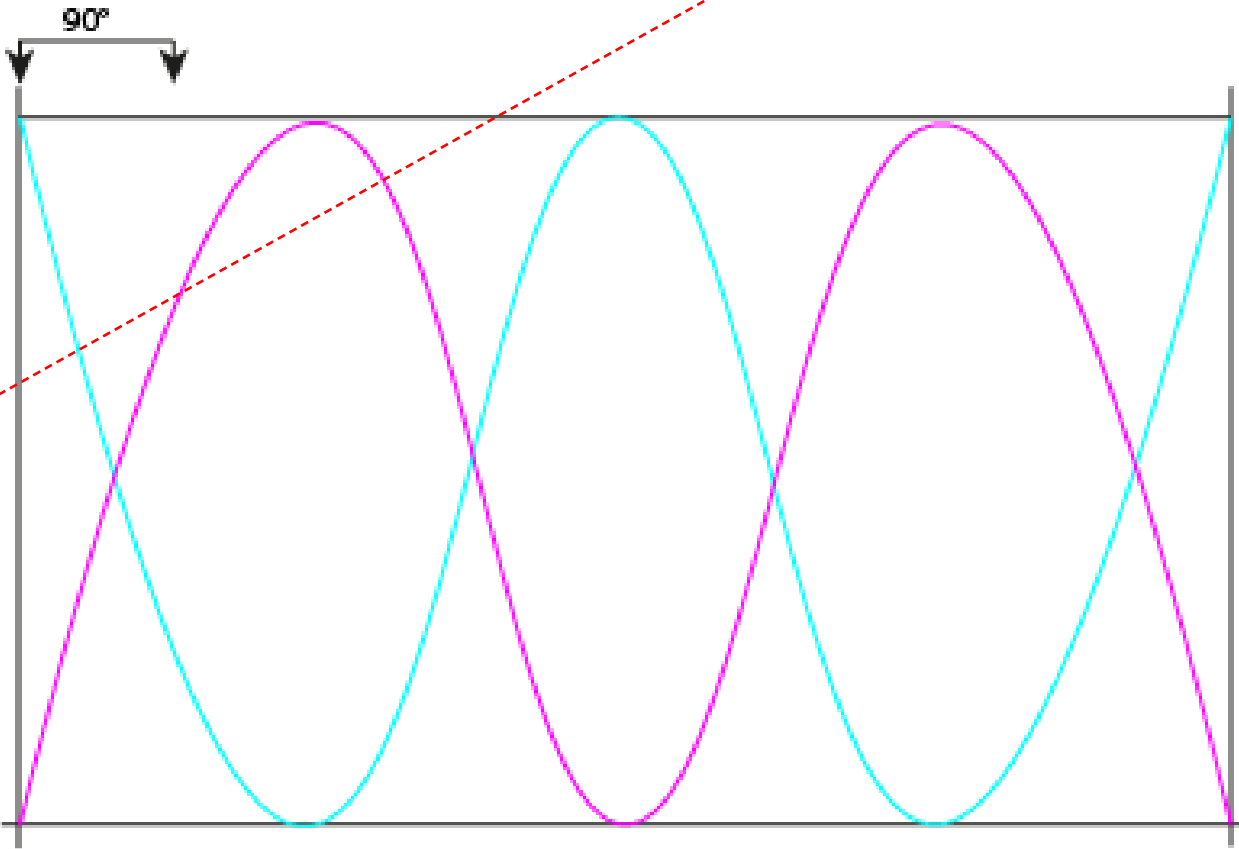
UNIT 0: RHYTHM

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1.3 Subdivision

15 pt ->

The optimal range of tempo encoding occurs between 300ms and 1500ms. This is known as the zone of temporal integration, or the *tactus*. What happens when rhythmic durations are way above *tactus*? It turns out we subdivide. Subdivision refers to the breaking down of large units into usually even-sized smaller units. In the rhythmic sense the brain is performing chunking, and also building a hierarchical structure of rhythm. As in the frequency dimension for pitch and harmony (see units 5 and 8), small-integer ratios in time play important roles in rhythmic perception. Most rhythmic subdivisions consist of 2:1 ratios, especially in Western music. Rhythms in music of other cultures, e.g. *clavé* rhythmic patterns in Afro-Cuban and Brazilian rhythms, employ more complex rhythmic patterns, but which can also be broken down into chunks of 2:1 temporal ratios (see Toussaint).



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30 pt ->

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