



**In search of the language
of light and shadows**

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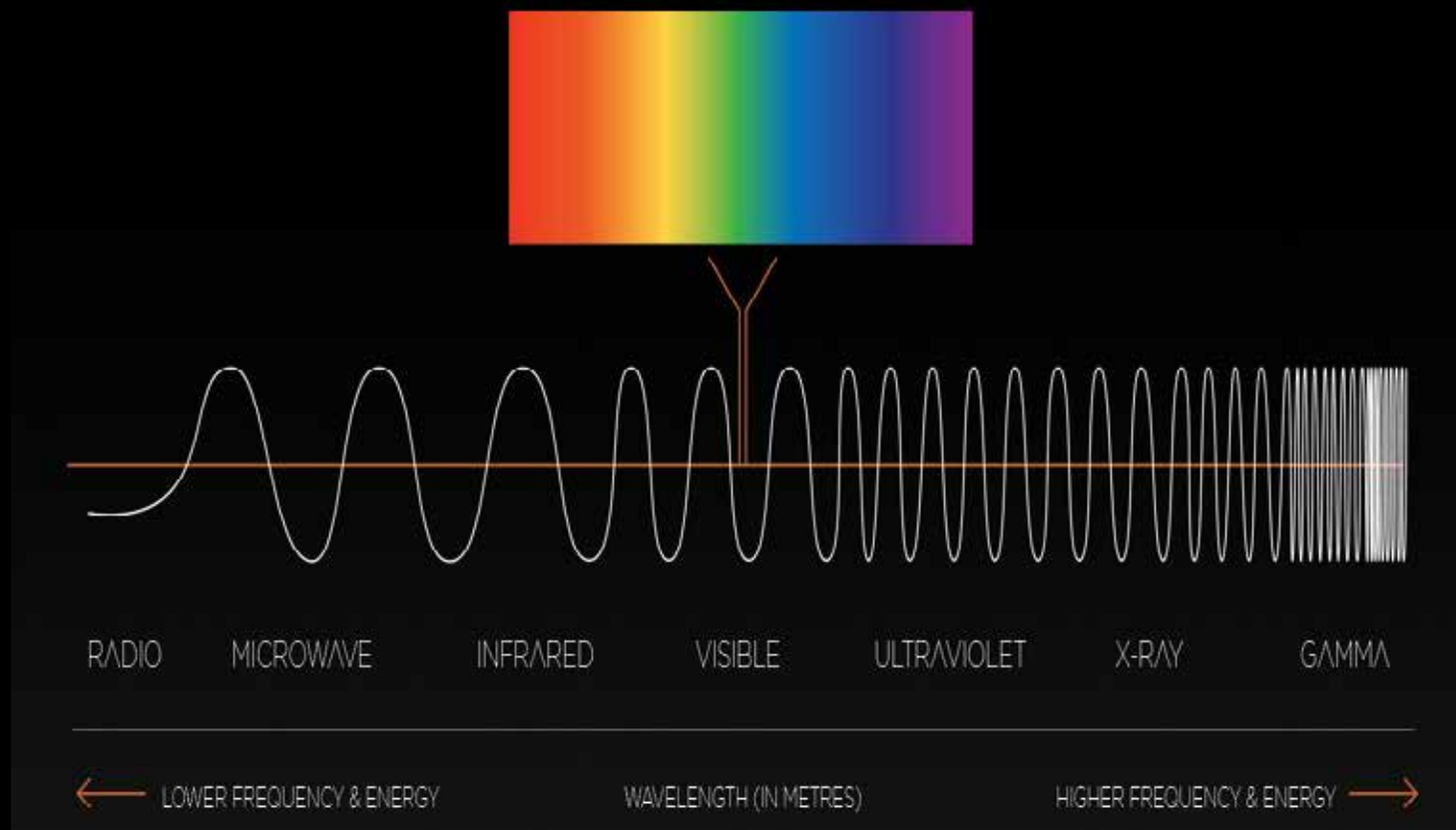
Konstfack / University of Arts,

Crafts and Design

Stockholm, Sweden

KONSTFACK

University of Arts, Crafts and Design





“If a tree falls in a forest and no one is around to hear it, does it make a sound?”

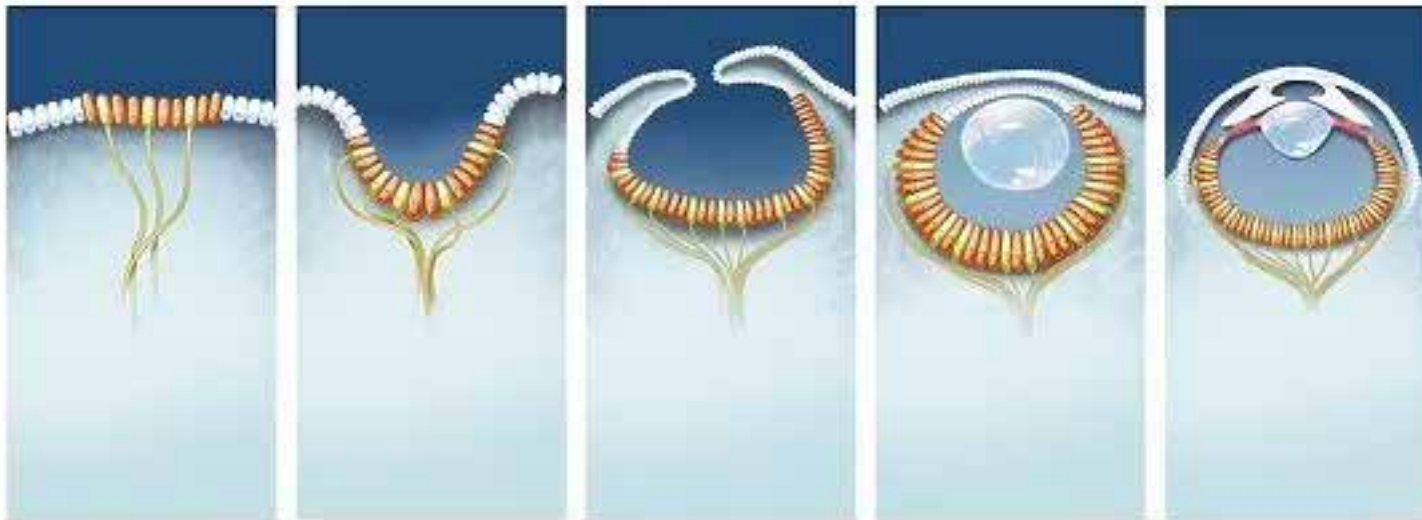


In the origin of times

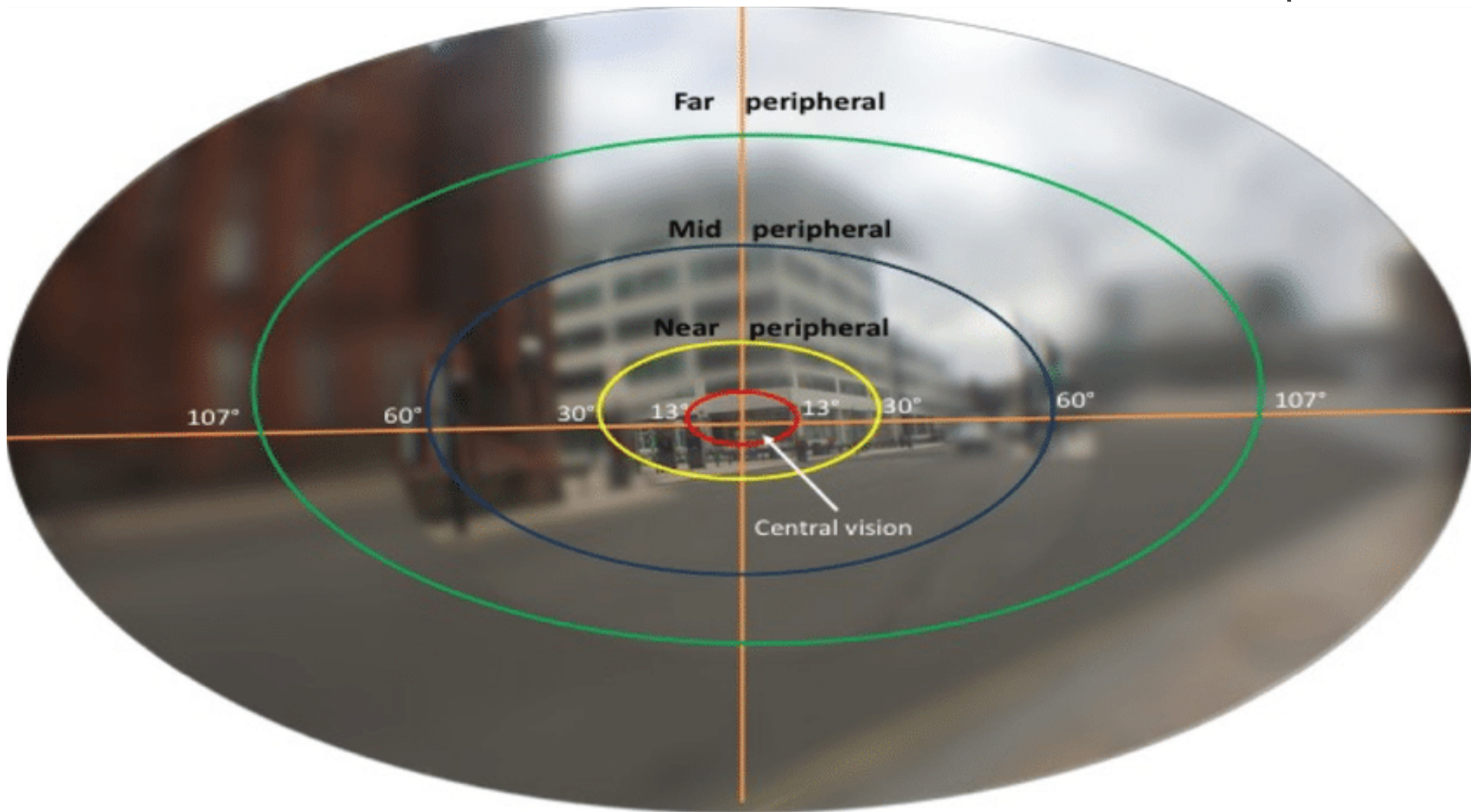
The cambrian explosion



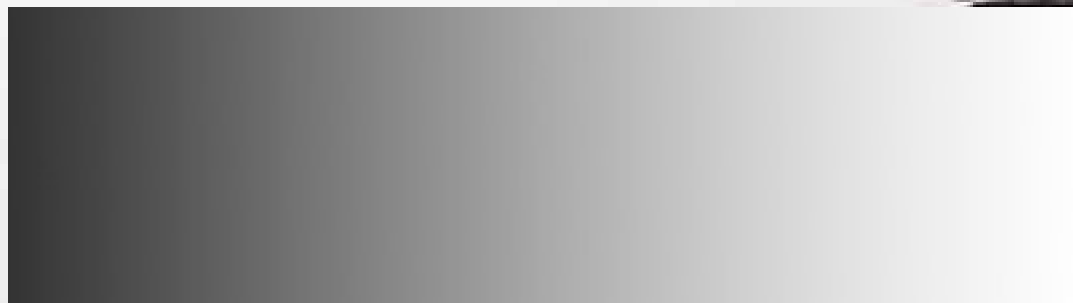
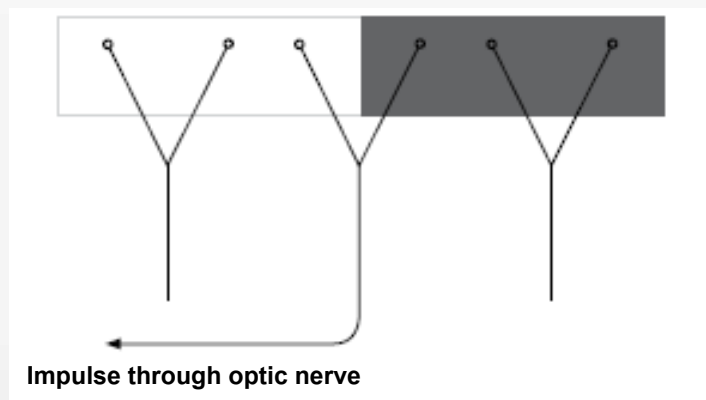
Evolution of the eye

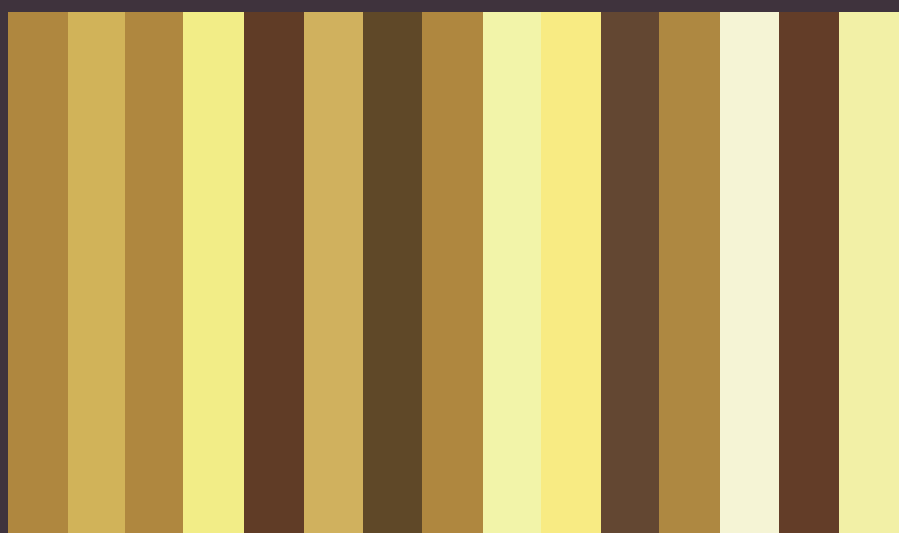


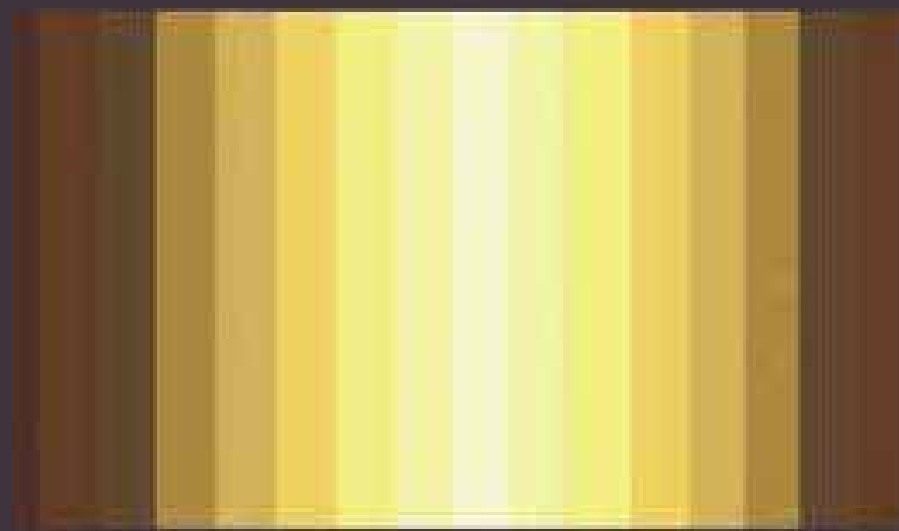
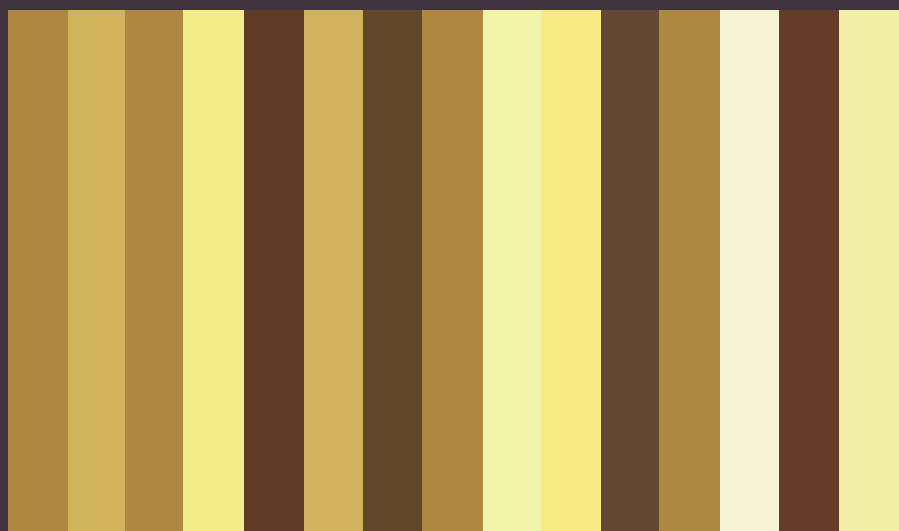
Focus vision & Peripheral vision



Contrast Ratio Gradient







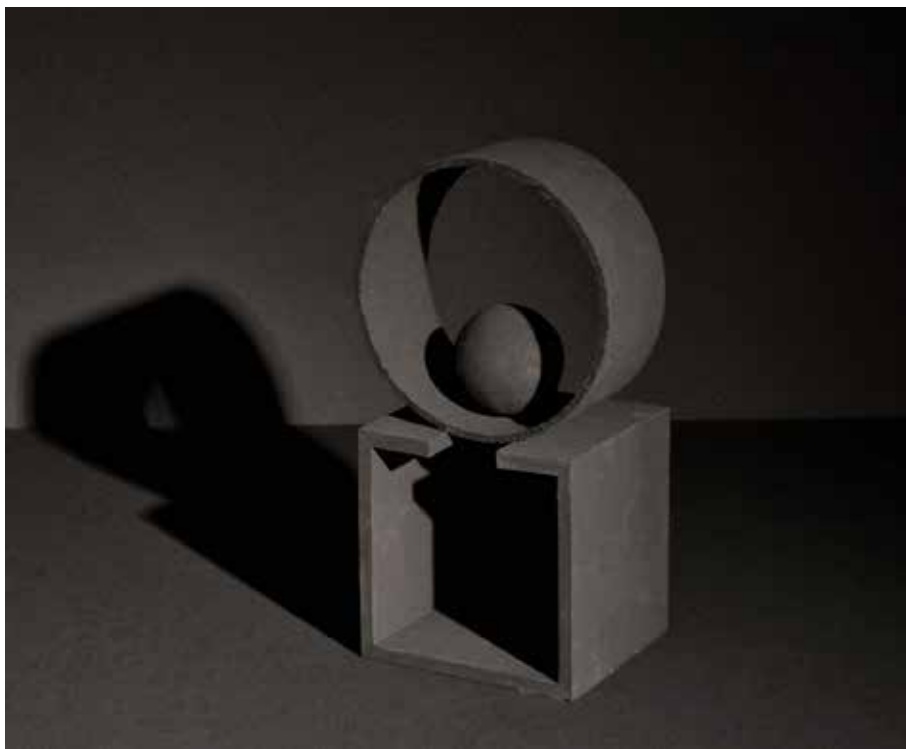
Pictures by Ulf Klarén



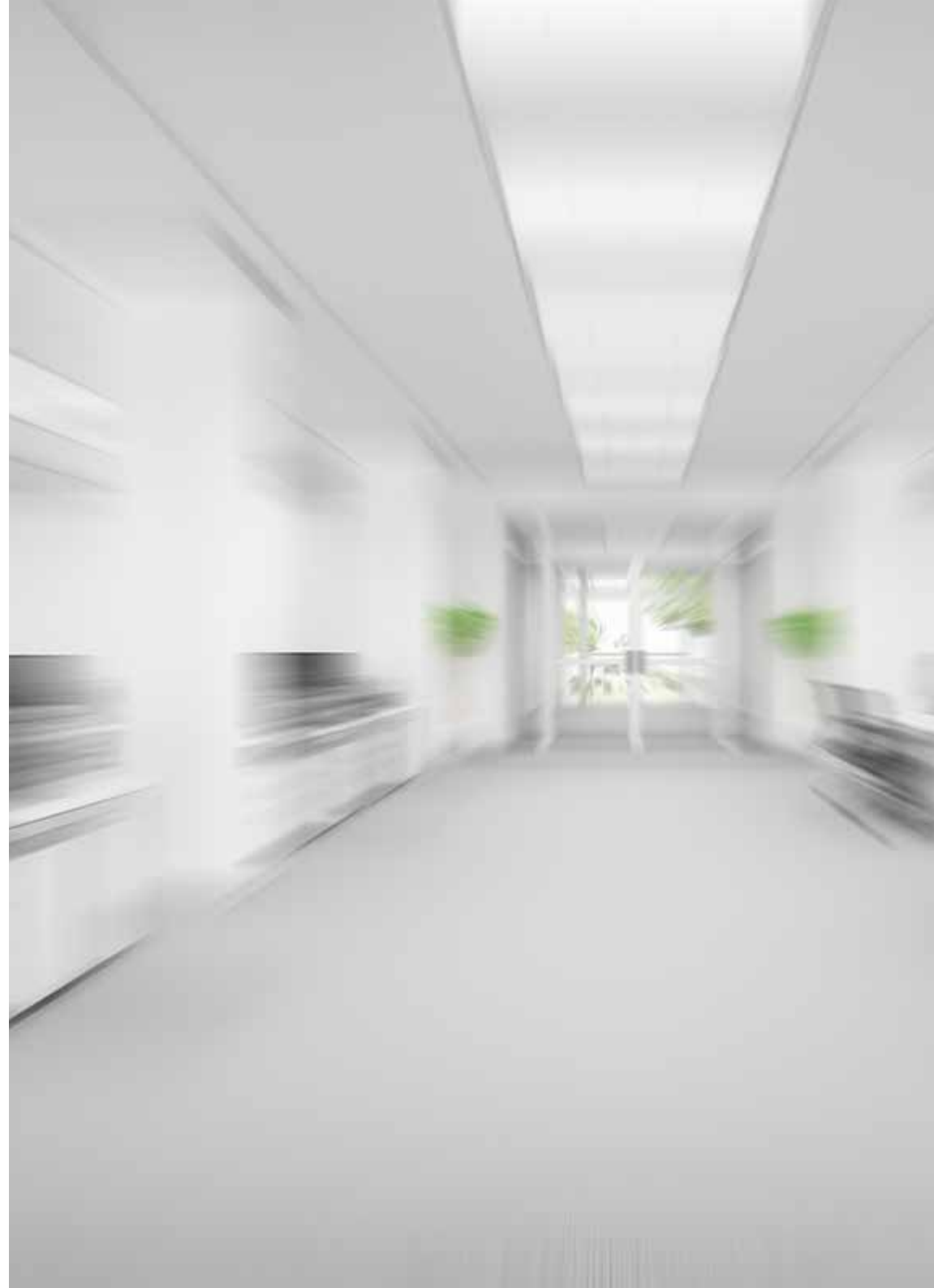
**Contrasts can be created by
the colour scheme...**



... or by using directed light



**Contrasts can be created by
the colour scheme,
or by using directed light**

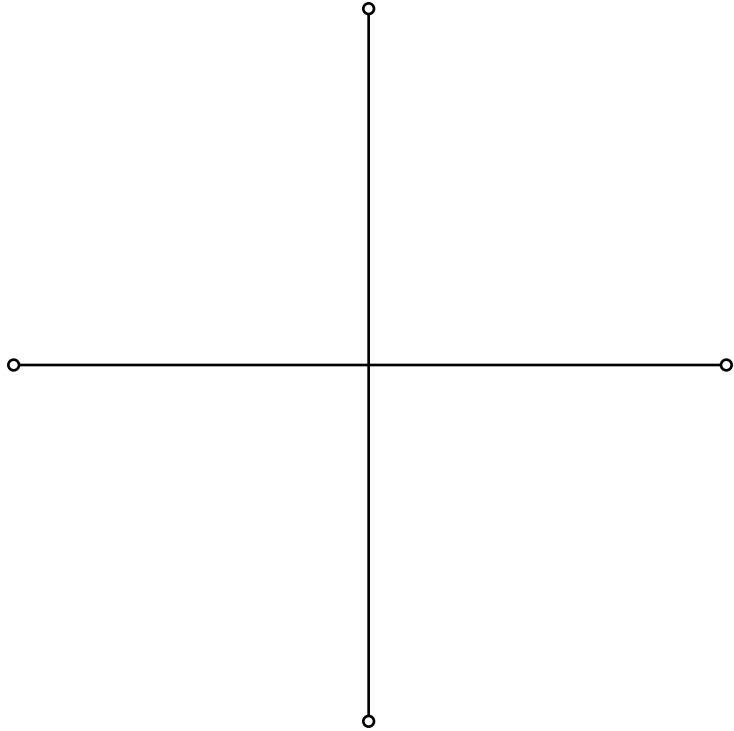




Light level



Contast



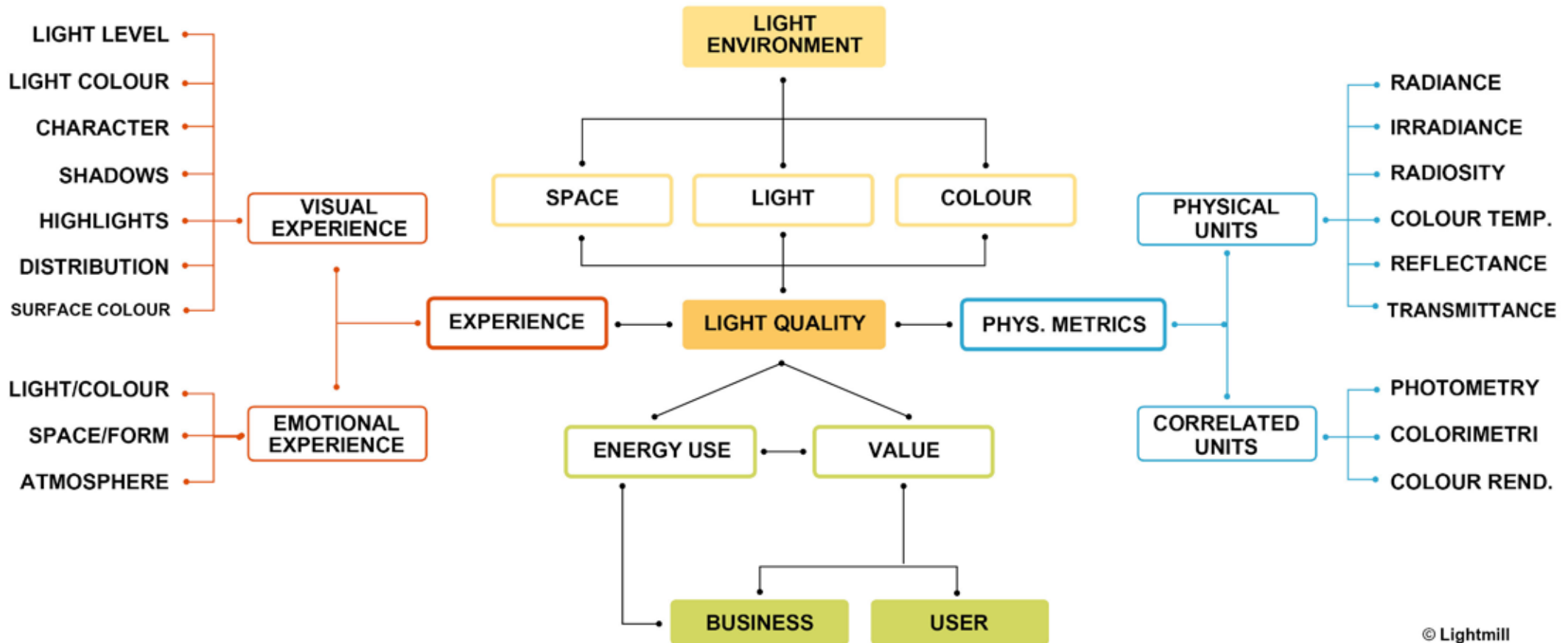
Perceptual Metrics for Lighting Design (2016-2023)

Konstfack - University of Arts, Crafts and Design

RISE - Research Institutes of Sweden

HKR - Kristianstad University

The Swedish Lighting Industry



Typology for colour schemes
(acromatic colours)
Reflection/contrast

High



Reflectance

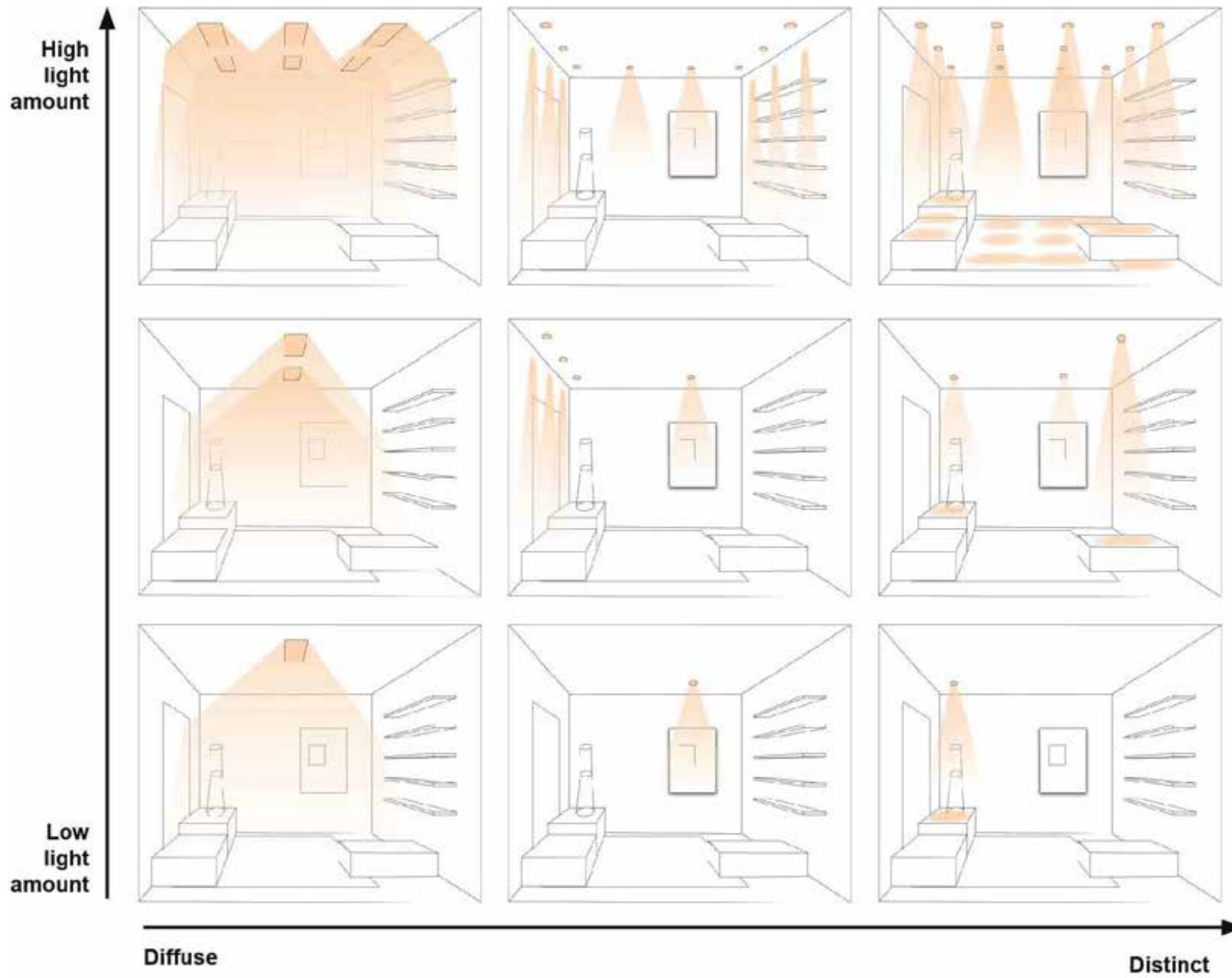


Low

High

Contrast

Typology for lighting principles



The room as a whole

- Uniform**
- Has depth**
- Formless**
- Incoherent**
- Varied**
- Flat**
- Spacious**
- Harmonious**
- Distinct**
- Monotonous**

Experience of the light

- Soft**
- Flat**
- Clear**
- Sharp**
- Dim**
- Luminous**
- Sparkling**
- Distinct**
- Monotonous**
- Mild**
- Varied**
- Intense**
- Even**
- Piercing**
- Diffuse**
- Decriptive**
- Crisp**

Experience of the shadows

- Clear**
- Light**
- Faint**
- Distinct**
- Soft**
- Decriptive**
- Hard**
- Diffuse**
- Dark**
- Blurred**

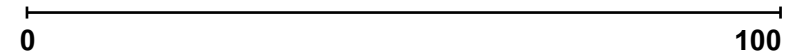
Experienced light level

(How do you experience the light level in the room? (Low/High))

Appreciation




(To what extent do you experience the room as appealing?)

Subdued



- Scale models 50x40x60 cm
 - LED strips
 - Fiber optics
-
- Ca 100 subjects in 4 different studies



| Ljuset Färgsättningen | Horisontellt, jämnt ljus (Taklameller döljer ljuskällor) Låg kontrast (skuggor&högdagrar) | Vertikalt, jämnt ljus (Indirekt ljus) Låg kontrast (skuggor&högdagrar) | Horisontellt, jämnt ljus Låg kontrast (skuggor&högdagrar) | Vertikalt/horisontellt, varierat ljus (Riktat ljus, accentuerande ljussättning) Medelhög kontrast (skuggor&högdagrar) | Vertikalt/horisontellt, varierat ljus (Riktat ljus, slumpmässig ljussättning) Medelhög kontrast (skuggor&högdagrar) |
|---|--|---|---|---|---|
| Vit väggfärg och inredning Hög reflektans Låg kontrast | Modell G  | Modell D  | Modell P  | Modell M  | Modell R  |
| Gråskala väggfärg och inredning Medel reflektans Medel kontrast (Modell T är helt enfärgad=låg kontrast) | Modell T  | Modell H  | Modell N  | Modell B  | Modell V  |
| S/V+Gråskala väggfärg och inredning Medel reflektans Hög kontrast | | | Modell L  | Modell S  | |
| Svart väggfärg och inredning Låg reflektans Låg kontrast | Modell F  | | | Modell C  | |

Modell P



Perceived light level: 7,5/10

Perceived contrast: 2/10

Appeal: 3,5/10

Modell S



Perceived light level: 3/10

Perceived contrast: 7/10

Appeal: 6 /10



**Pilot study
National Museum, Stockholm**



The room

The Light

The Shadows

**Harmonious
Spacious
Has depth
Distinct
Coherent**

**Descriptive
Varied
Dim
Distinct
Soft**

**Clear
Distinct
Accentuating
Descriptive**

The room

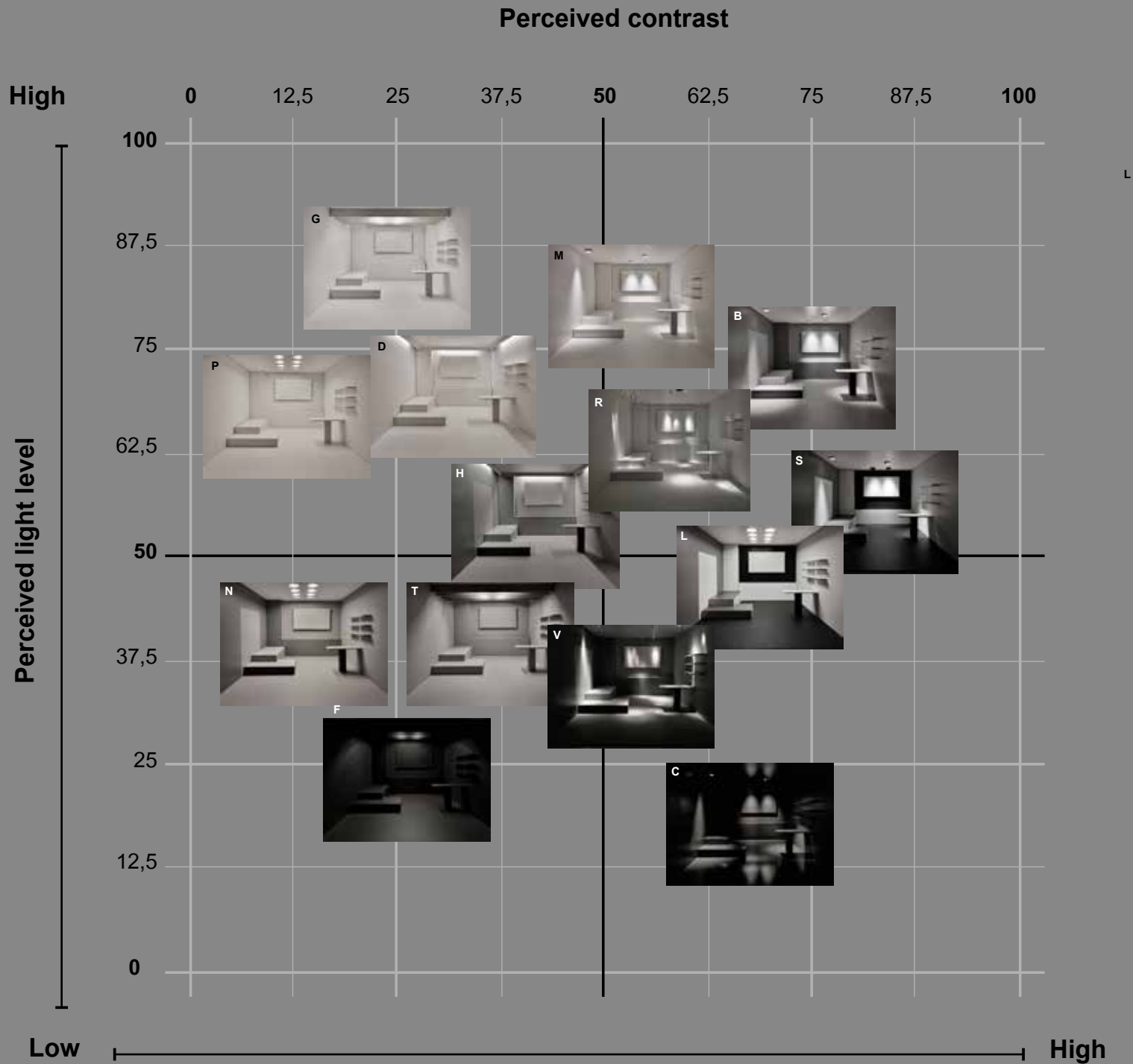
The Light

The Shadows

**Harmonious
Spacious
Has depth
Distinct
Incoherent
Varied**

**Descriptive
Varied
Dim
Distinct
Soft**

**Clear
Distinct
Accentuating
Descriptive
Hard**



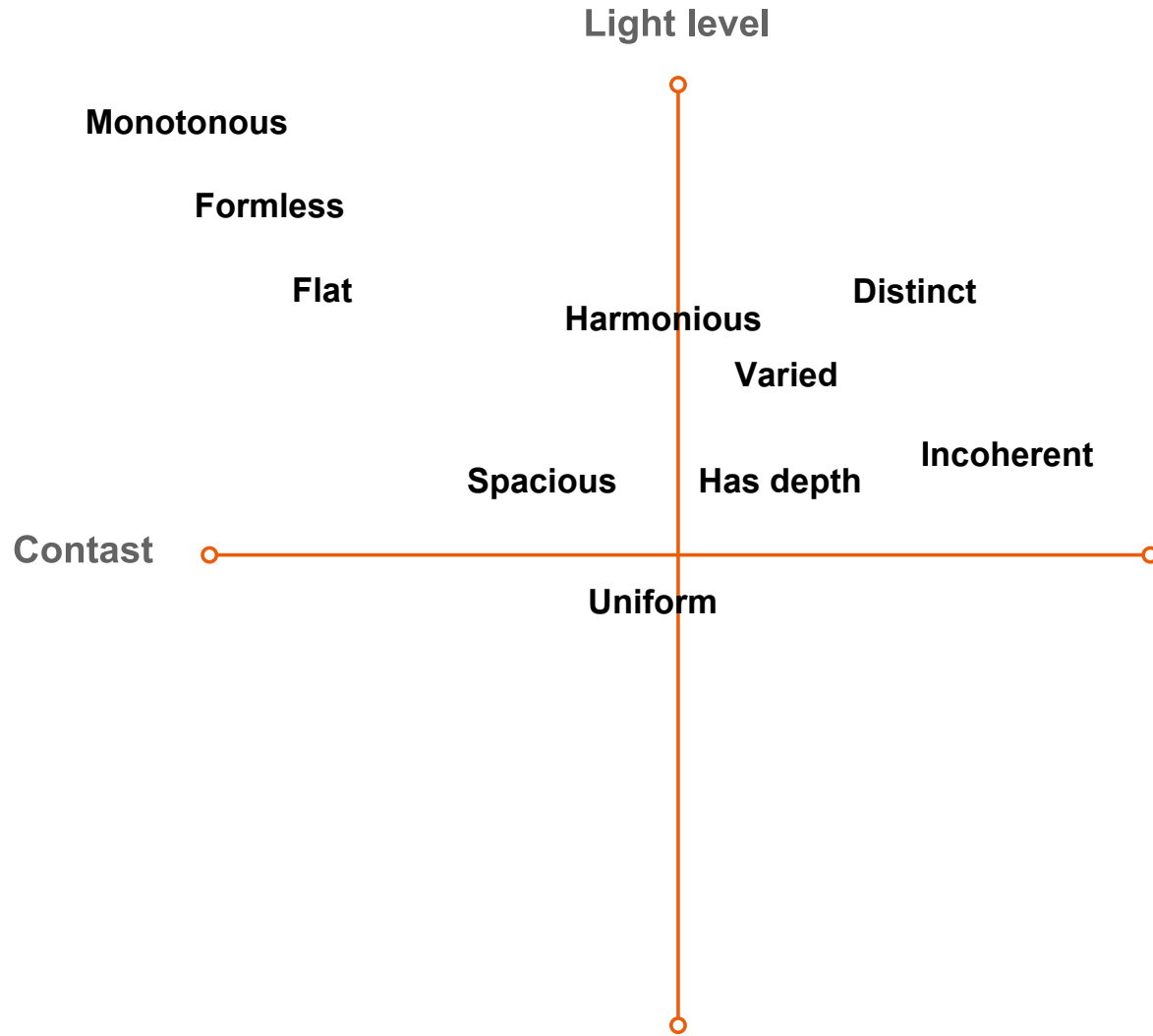
**Perceived
light level and
contrast**

L

High

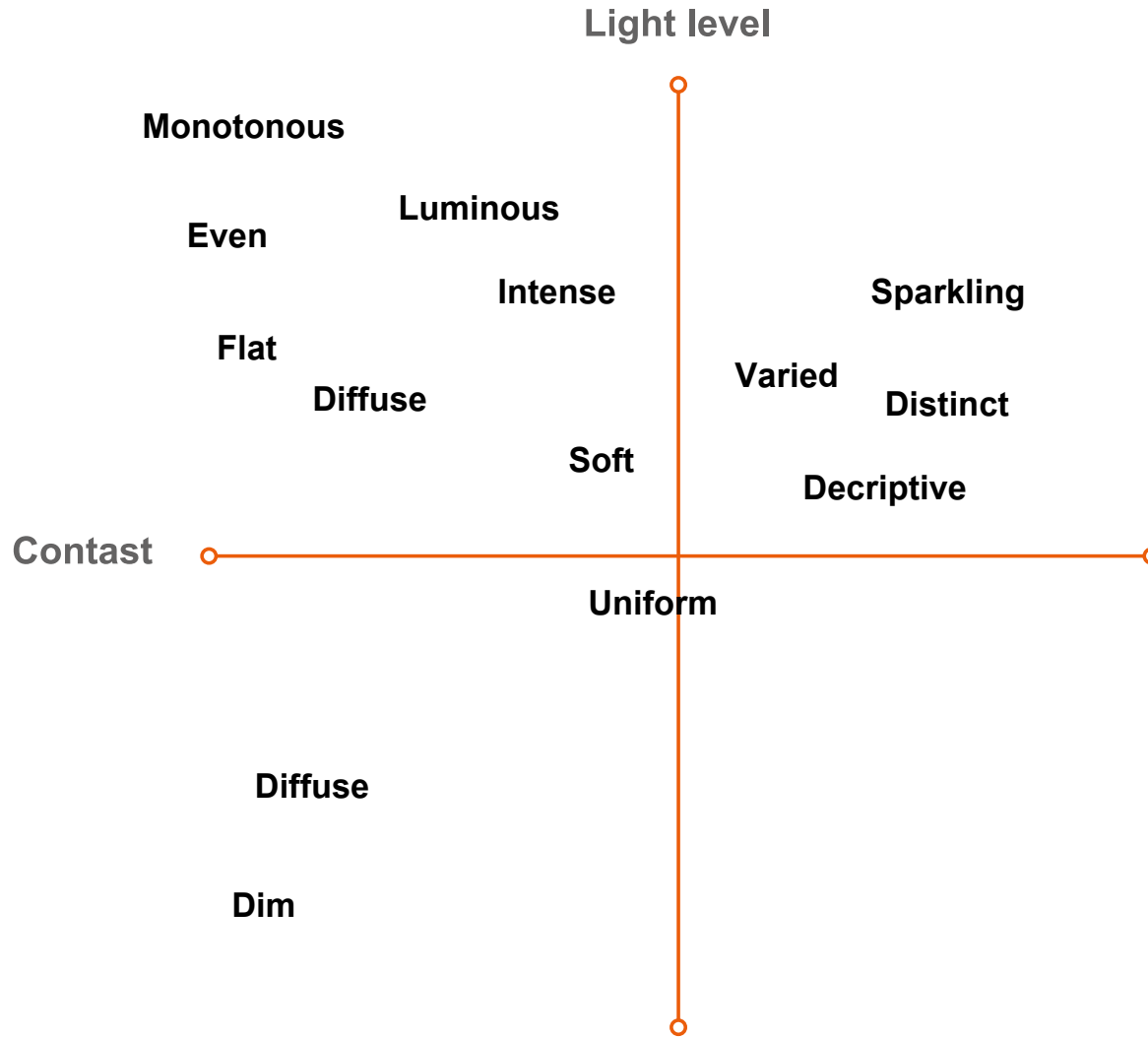
x

The room



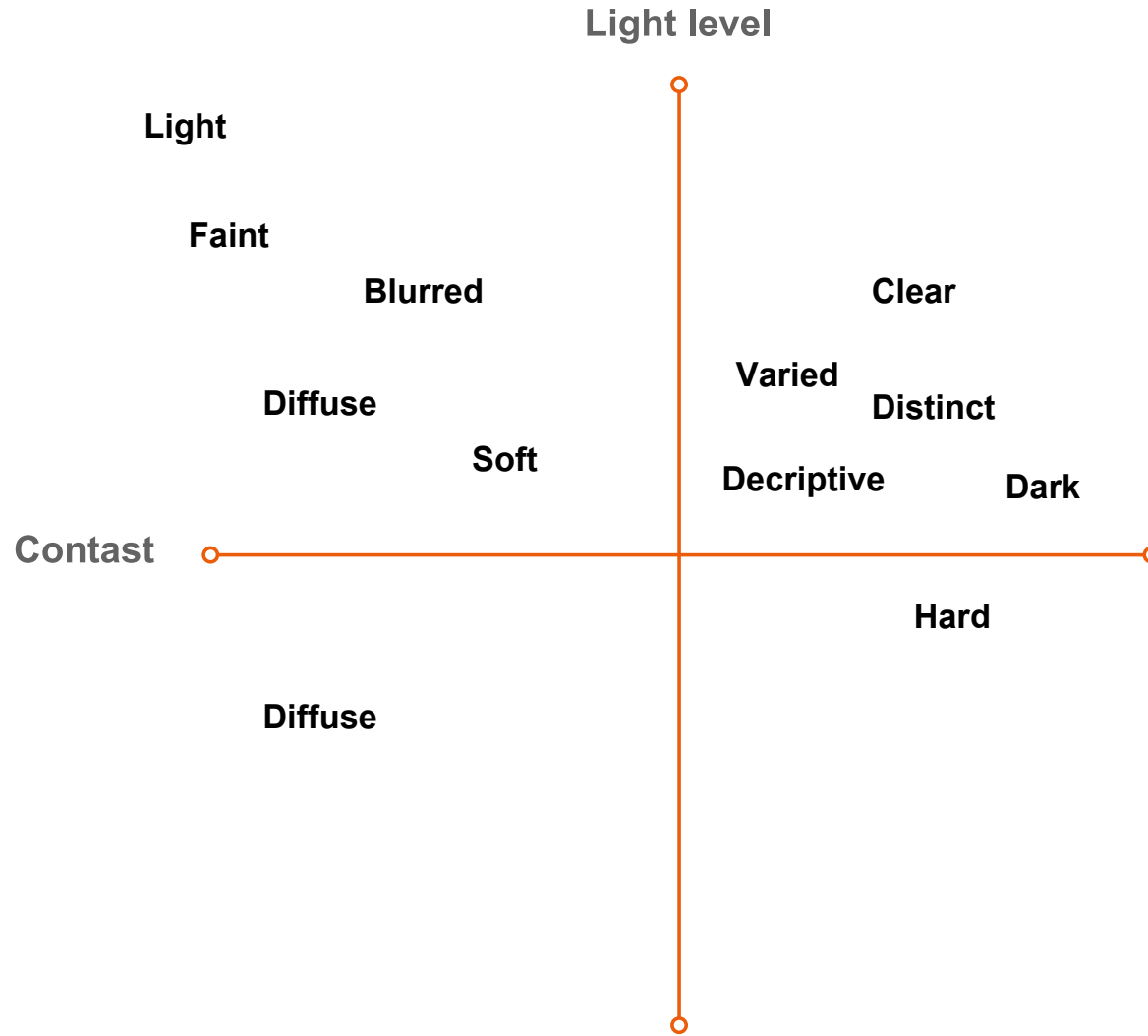
x

The light



x

The shadows



x

The language of light and shadows



Thank you! / Tack!