

Introducing the New System Fonts

Session 804

Antonio Cavedoni Type Designer

Agenda

Agenda

San Francisco Fonts

Agenda

San Francisco Fonts

Design Principles

Agenda

San Francisco Fonts

Design Principles

New Features, Changes, and Code

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San Francisco Fonts

Design Principles

New Features, Changes, and Code

Potential API Pitfalls









iPad Wi-Fi

Notes Edit

Kitchen remodel ideas
9:41 AM Modern kitchen de... 

Carson's birthday party
9:40 AM Call party supply... 

Reference letter for Lee
9:02 AM Worked on the same team...

Contractor meeting
8:37 AM Gary says the inspector will...

Tropical vacation ideas
Sunday Na Pali Properties Ka... 

Miami conference notes
Sunday Sales in emerging markets up

Landscaping
Saturday Look into flagstone for back...

NYC dining greatest hits
Thursday Get reservations... 

Team-building activities
Thursday Paintball tournament

Story idea
Wednesday Circus clowns rob bank.

128 Notes

9:41 AM

Undo Redo Trash Share Edit

Kitchen remodel ideas

Modern kitchen design in a small space. Should have an island. Plenty of storage. Need to research colors, materials, and appliances (stainless steel).

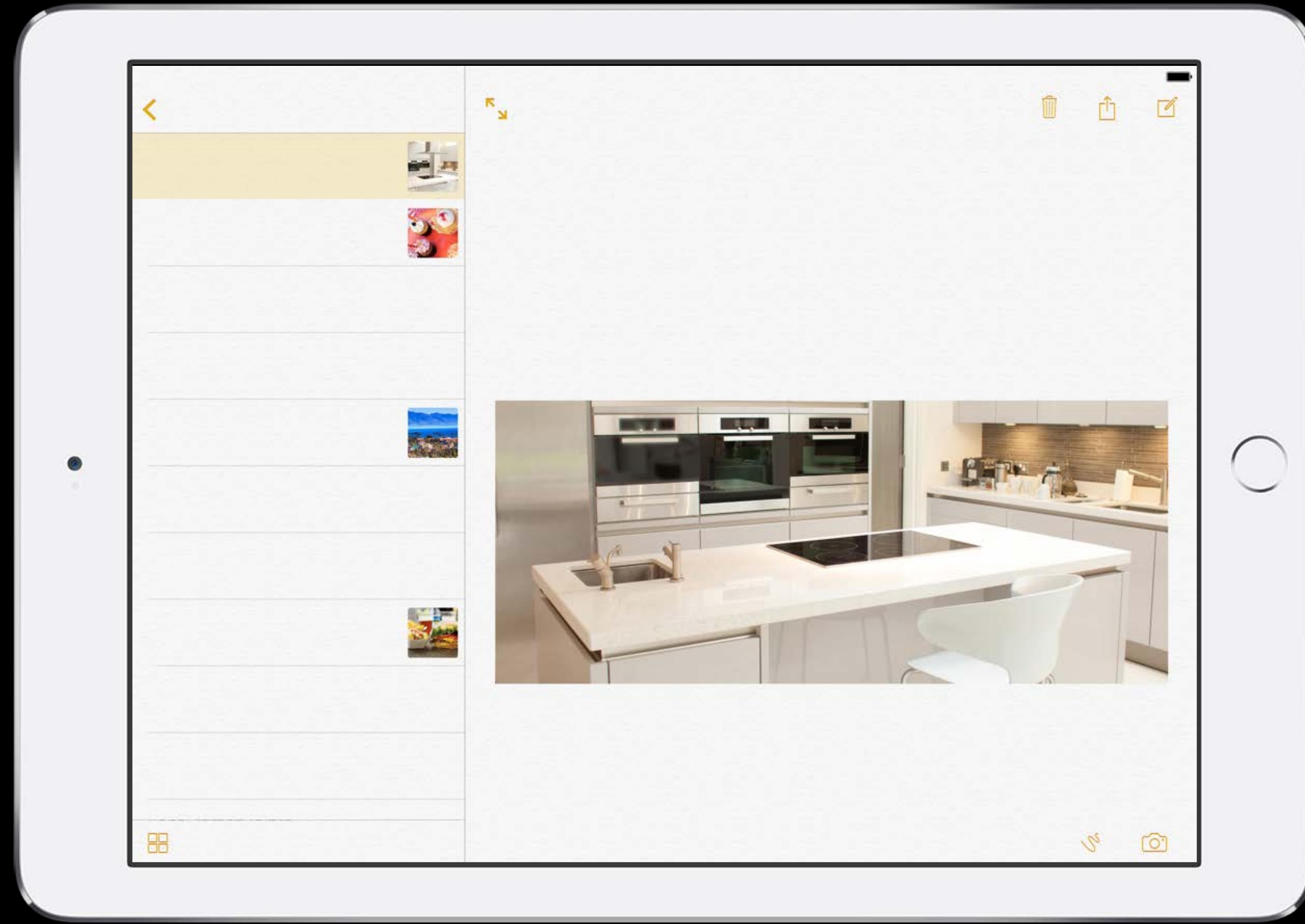
Things to do

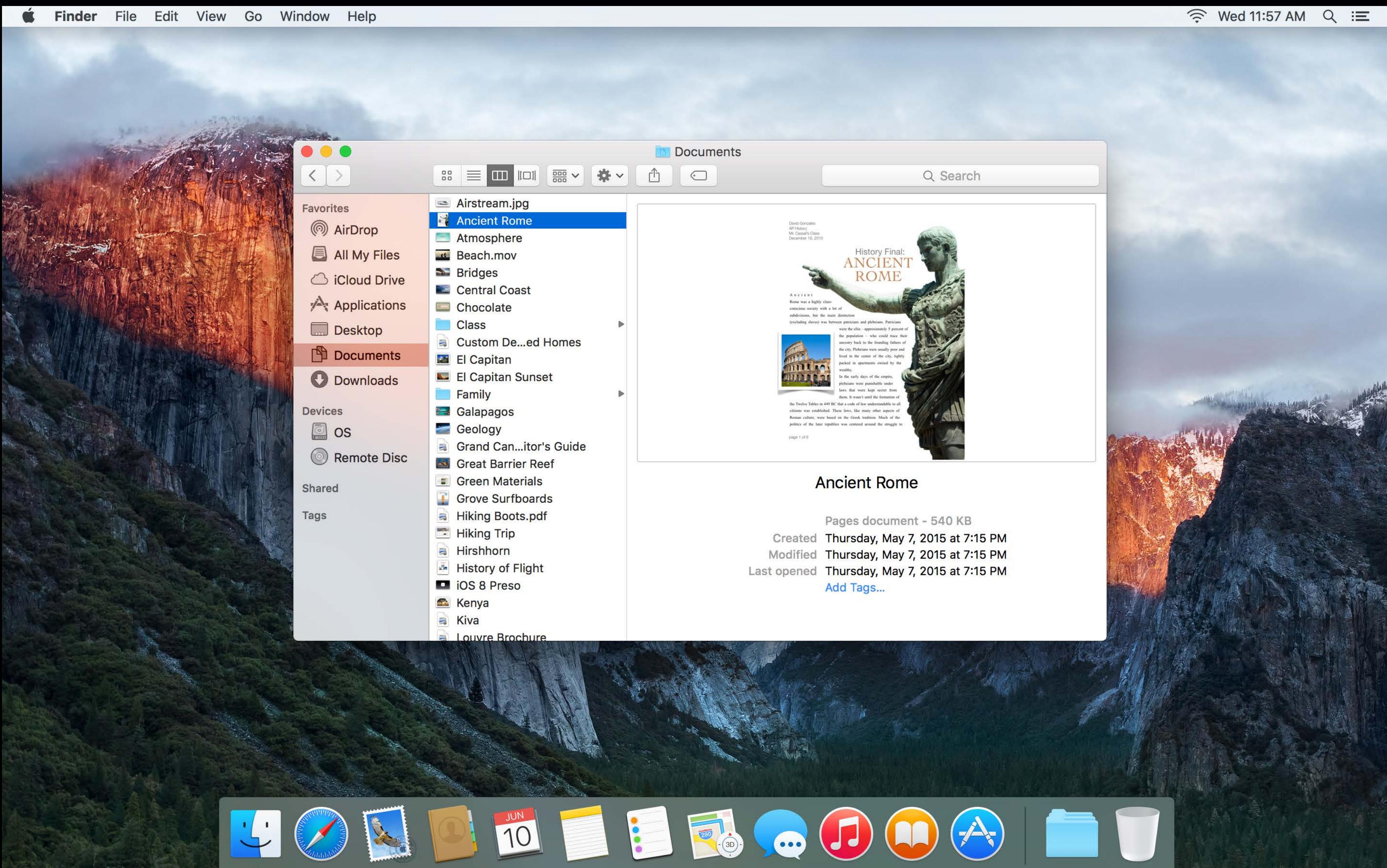
- Create a budget
- Price appliances
- Consult with a contractor

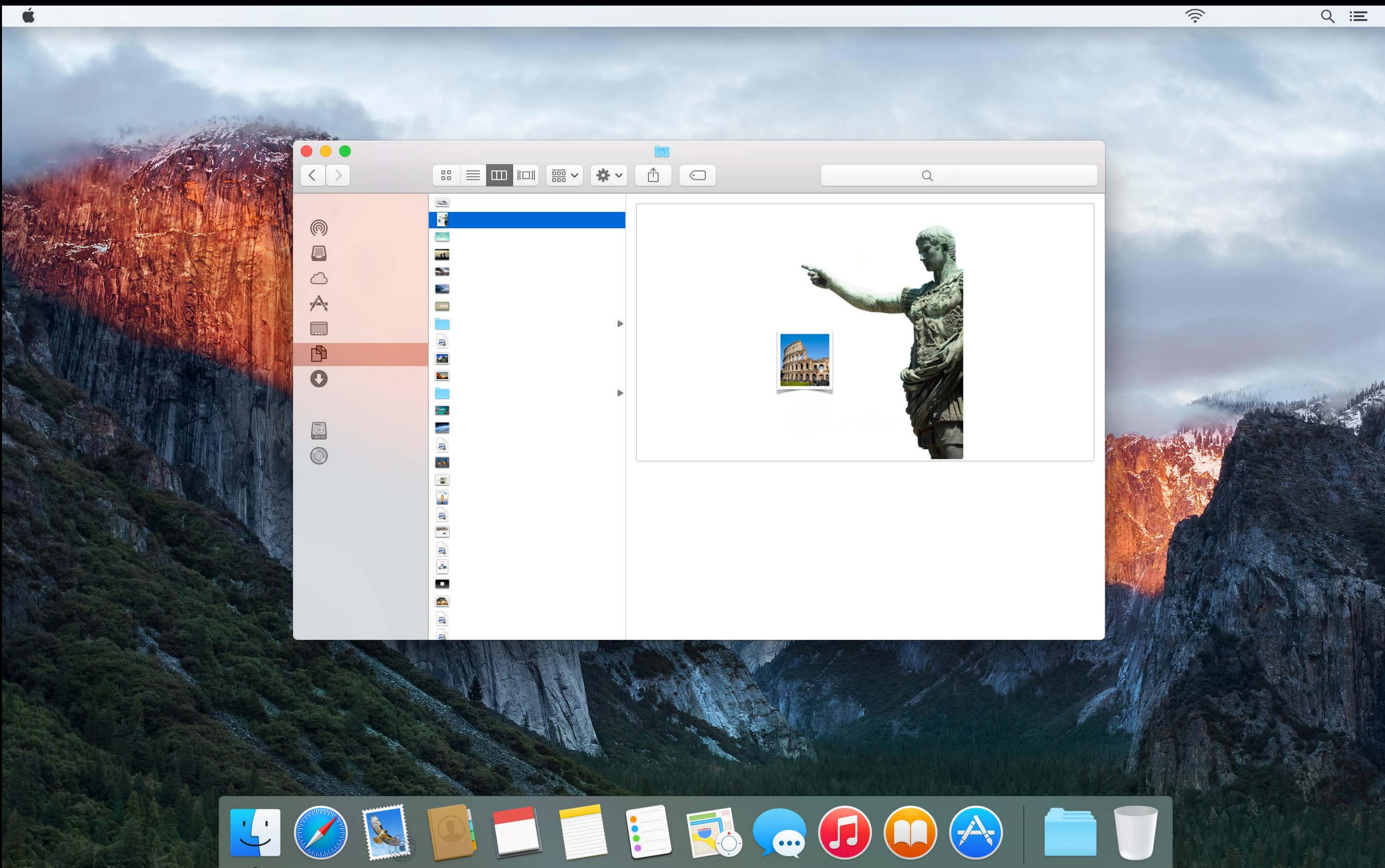


1953LF Delta Single Handle Bar/Prep Faucet
m.deltafaucet.com

W Camera





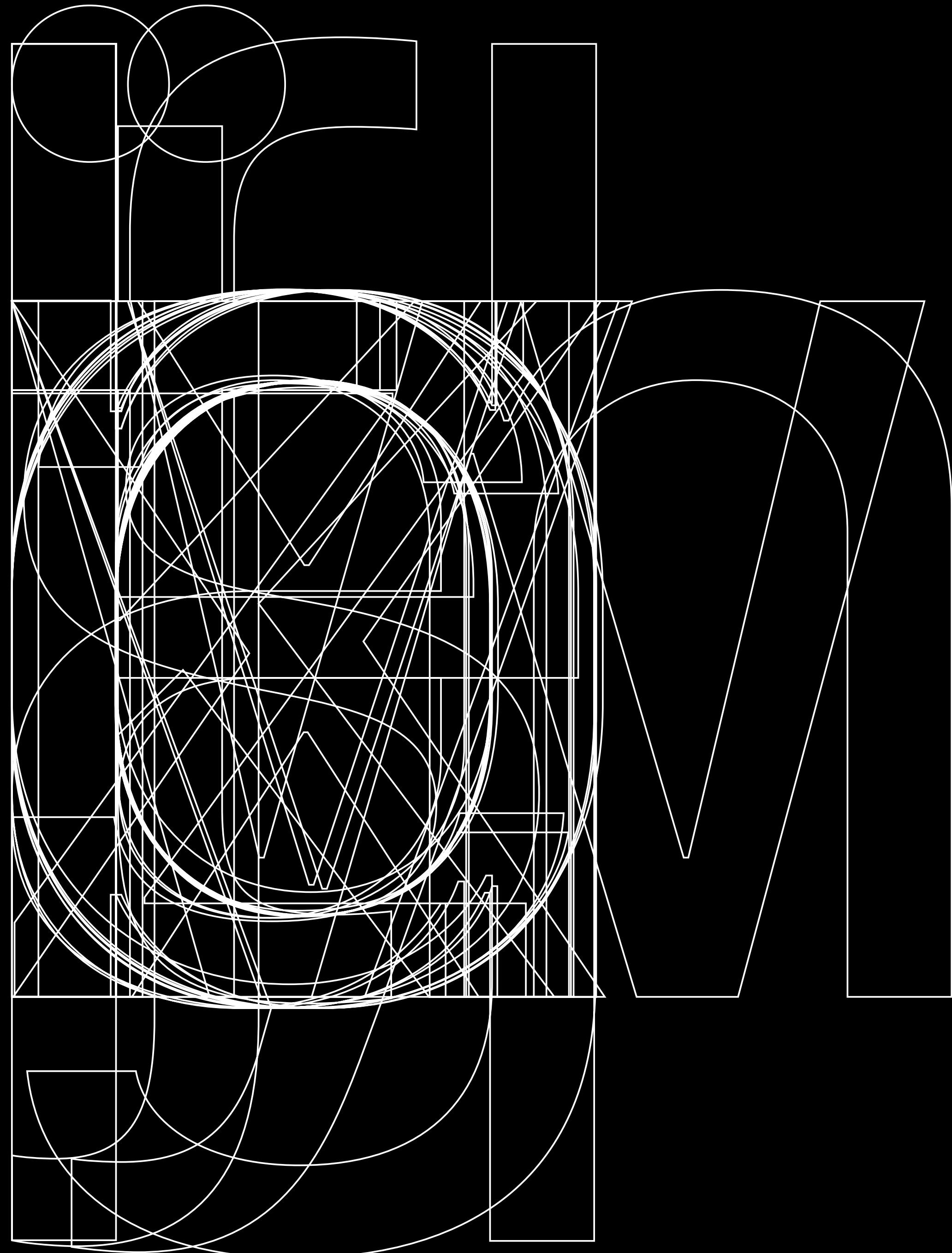




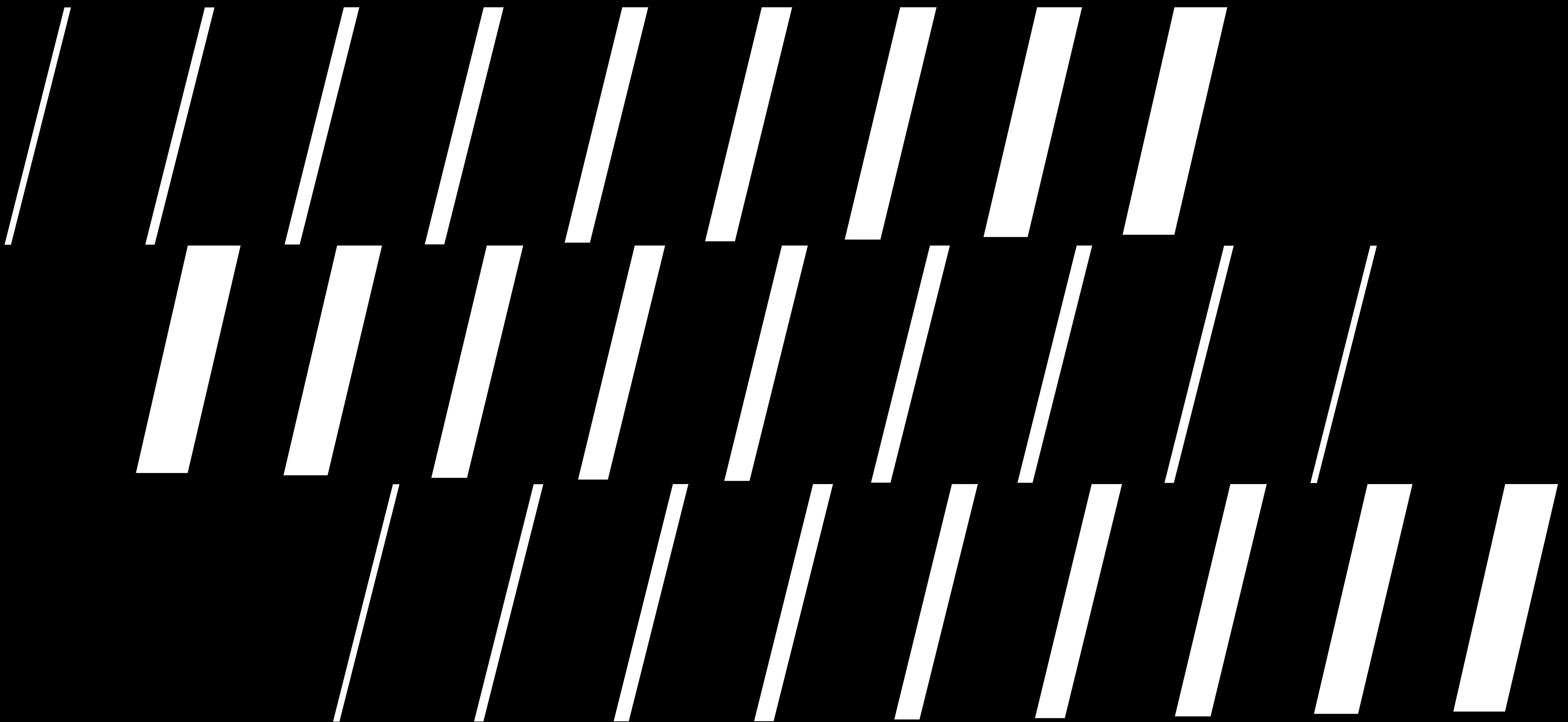




San Francisco



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1 2 3 4 5 6 7 8 9

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A A A A A A

AAA

San Francisco

A B C D E F G H I J K L M N O

P Q R S T U V W X Y Z

a b c d e f g h i j k l m n

o p q r s t u v w x y z

1 2 3 4 5 6 7 8 9 & 0

Family Tree

San Francisco

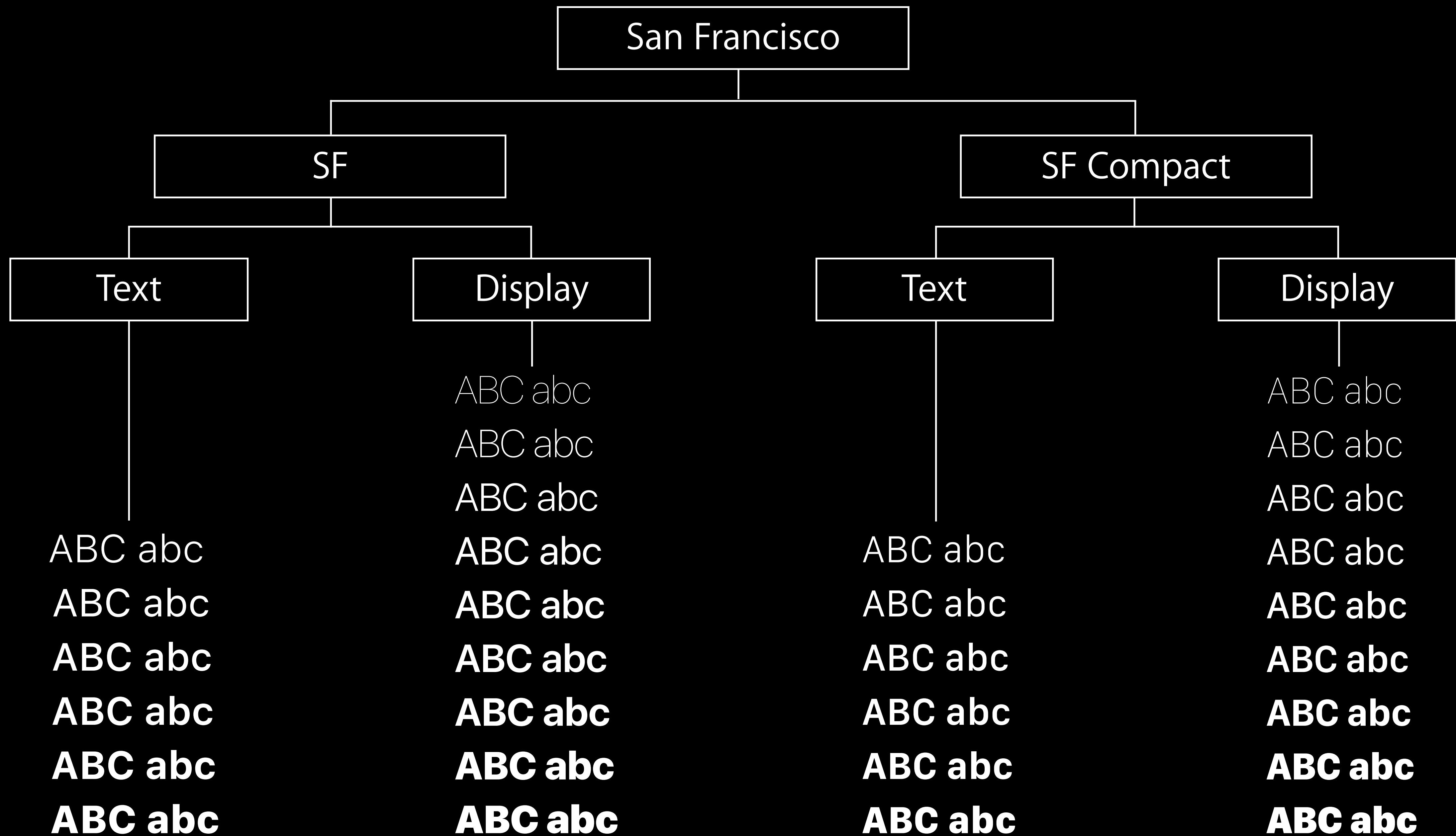
Family Tree



Family Tree



Family Tree



SF

ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz 0123456789

SF Compact

SF and SF Compact



SF and SF Compact

abcdefghijklmnopqrstuvwxyz

abcdefghijklmnopqrstuvwxyz

SF and SF Compact

abcdefghijklmnpqrstuvwxyz

o e s

abcdefghijklmnpqrstuvwxyz

o e s

SF and SF Compact

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SF and SF Compact

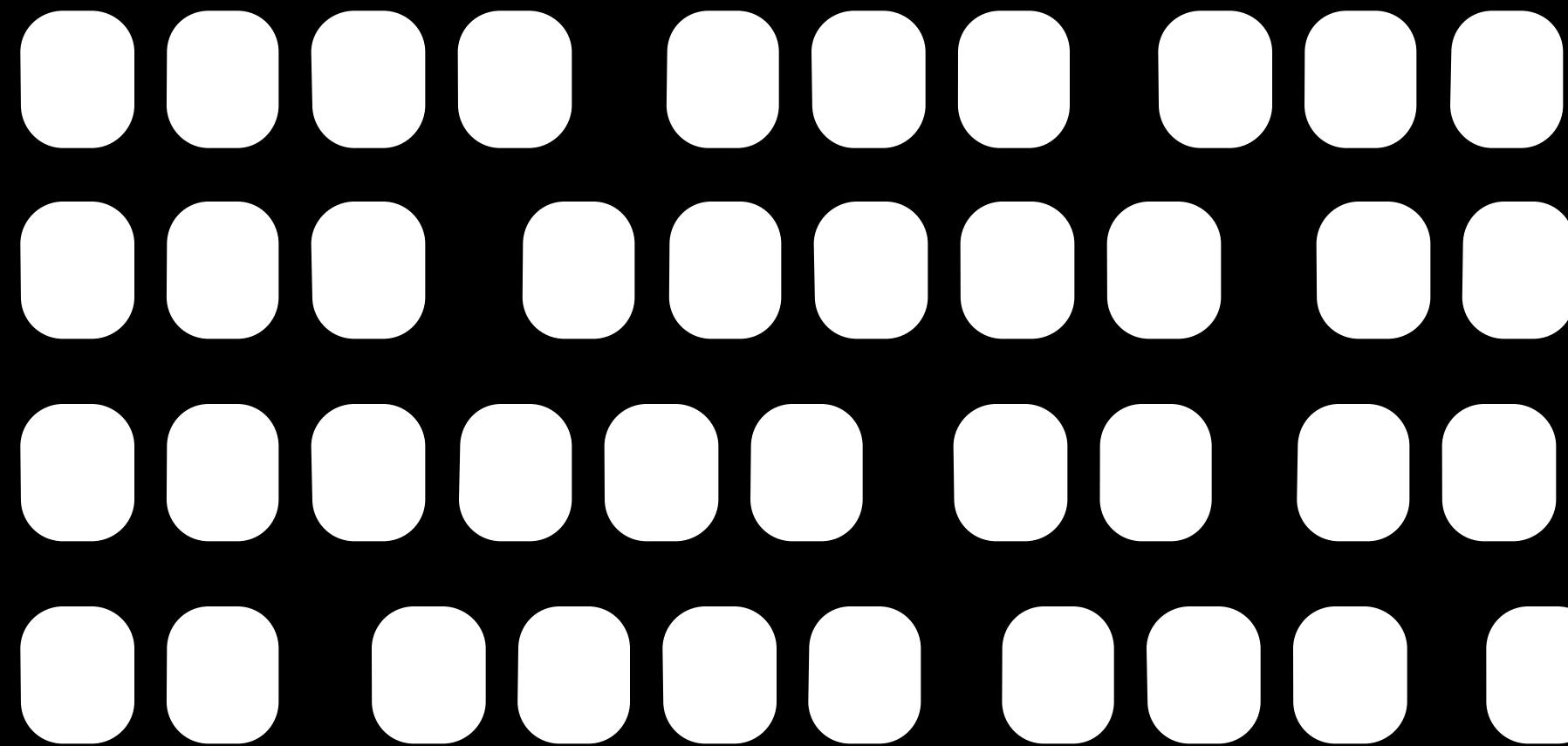
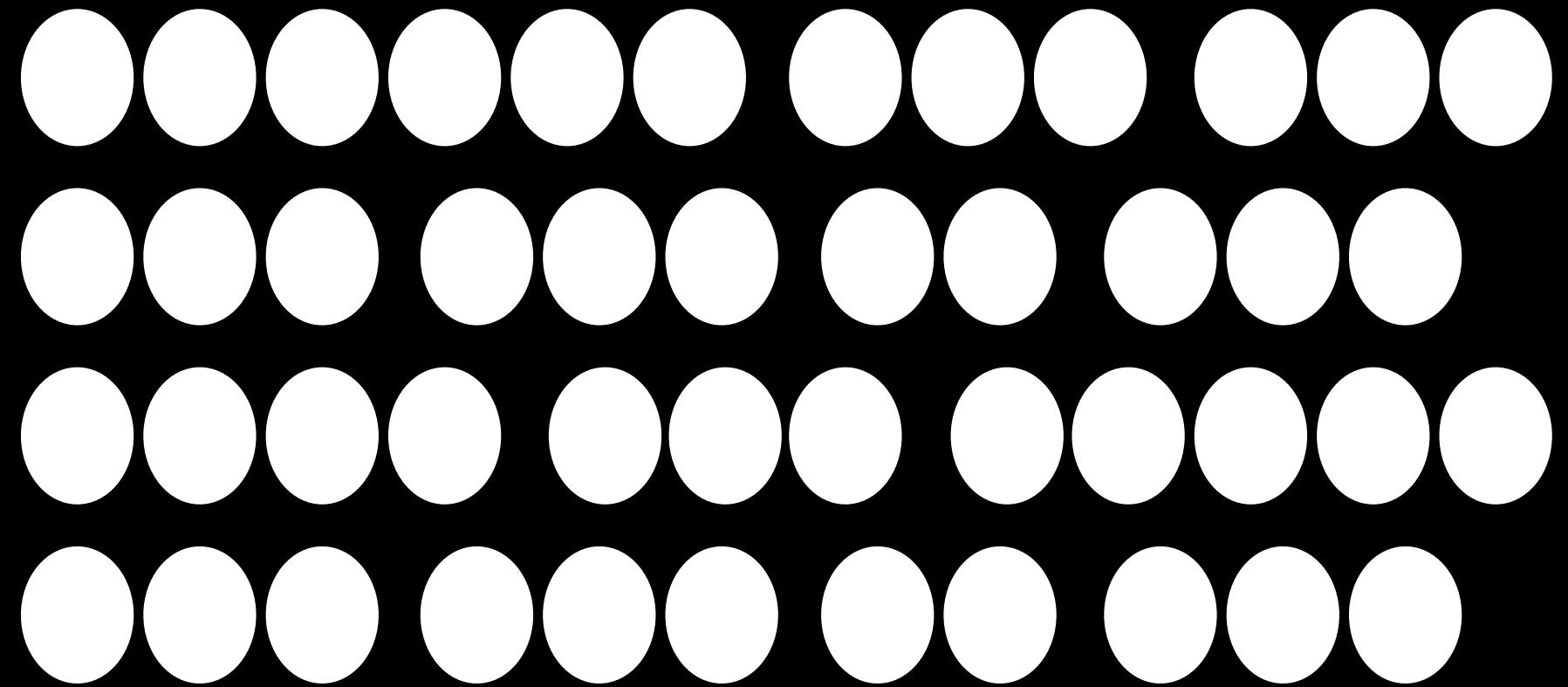
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Texture



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oes

Texture

To be the first to enter the cosmos,
to engage, single-handed, in an
unprecedented duel with nature—
could one dream of anything more?
We choose to go to the moon in
this decade and do the other
things, not because they are easy,

(O)eS

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|O|eS

Texture

To be the first to enter the cosmos, to engage, single-handed, in an unprecedented duel with nature—could one dream of anything more? We choose to go to the moon in this decade and do the other things, not because they are easy, but because they are hard, because that goal will serve to organize and measure the best of our energies and skills, because that challenge is one that we are willing to accept, one we are unwilling to postpone, and one which we intend to win. Here men from the planet Earth first set foot upon the Moon. July 1969 AD. We came in peace for all mankind. Here men from the planet Earth first set foot upon the Moon.

To be the first to enter the cosmos, to engage, single-handed, in an unprecedented duel with nature—could one dream of anything more? We choose to go to the moon in this decade and do the other things, not because they are easy, but because they are hard, because that goal will serve to organize and measure the best of our energies and skills, because that challenge is one that we are willing to accept, one we are unwilling to postpone, and one which we intend to win. Here men from the planet Earth first set foot upon the Moon. July 1969 AD. We came in peace for all mankind. Here men from the planet Earth first set foot upon the Moon.

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Texture

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To be the first to enter the cosmos, to engage, single-handed, in an unprecedented duel with nature—could one dream of anything more? We choose to go to the moon in this decade and do the other things, not because they are easy, but because they are hard, because that goal will serve to organize and measure the best of our energies and skills, because that challenge is one that we are willing to accept, one we are unwilling to postpone, and one which we intend to win. Here men from the planet Earth first set foot upon the Moon. July 1969 AD. We came in peace for all mankind. Here men from the planet Earth first set foot upon the Moon. July 1969 AD. We came in peace for all mankind. Never in all their history have men been able truly to conceive of the world as one: a single sphere, a globe, having the qualities of a globe, a round earth in which all the directions eventually meet, in which there is no center because every point, or none, is center — an equal earth which all men occupy as equals. The airman's earth, if free men make it, will be truly round: a globe in practice, not in theory.

(oes

|oes

Proportions

5H1px

Baseline



x-Height



Cap-Height

both HOPE

Descender

l o h p x

Ascender

l b o f H P O X

Proportions

50%
of
HPOX

Compatible Overall Vertical Metrics

bhilox

Cap-Height Lower Than Ascenders

A horizontal ruler is shown above the letters, with a blue line at the top and a thin black line below it. The letters are positioned such that their cap-heights are lower than the ascender height of the 'h' and 'l'.

b h l p x

Large x-Height

b f h i l p x

Numbers Align with Uppercase

5ohipox

Latin

A B C D E F G H I J K L M N

O P Q R S T U V W X Y Z

a b c d e f g h i j k l m n

o p q r s t u v w x y z

Polish

które wstrząsnęły sumieniem ludzkości, i że ogłoszono uroczystie jako najwznióslejszy cel ludzkości dążenie do zbudowania takiego świata, w którym ludzie korzystać będą z wolności słowa i przekonań oraz z wolności od strachu i nedzy, zważywszy, że konieczne jest zawarowanie prawa człowieka przepisami prawa, aby nie musiał – doprowadzony do ostateczności – uciekać się do buntu przeciw tyranii i uciskowi, zważywszy, że

Icelandic

æðsta markmið almennings um heim allan sé að skapa veröld, þar sem menn fái notið málfrelnis, trúfrelnis og óttaleysis um einkalíf afkomu.

Mannréttindi á að vernda með lögum. Að öðrum kosti hljóta menn að grípa til bess örþrifaráðs að rísa upp gegn kúgun og ofbeldi. Það er mikilsvert að efla vinsamleg samskipti þjóða í milli. Í stofnskrá sinni hafa Sameinuðu þjóðdirnar lýst yfir trú sinni á grundvallaratriði mannréttinda, á göfgi og gildi

Hungarian

fellázító barbár cselekményekhez vezetett, és hogy az ember legfőbb vágya egy olyan világ eljövetele, amelyben az elnyomástól, valamint a nyomortól megszabadult emberi lények szava és meggyőződése szabad lesz, tekintettel annak fontosságára, hogy az emberi jogokat a jog uralma védelmezze, nehogy az ember végső szükségében a zsarnokság és az elnyomás elleni lázadásra kényszerüljön, tekintettel arra, hogy igen lényeges a

Vietnamese

cả các nước và tất cả các dân tộc đánh giá việc thực hiện mục tiêu mà mọi cá nhân và mọi tổ chức trong xã hội, trên cơ sở luôn ghi nhớ Bản tuyên ngôn này, sẽ phán đấu thúc đẩy sự tôn trọng các quyền và tự do cơ bản của con người thông qua truyền bá và giáo dục, cũng như sẽ phán đấu đảm bảo cho mọi người dân, ở chính các nước thành viên của Liên Hợp Quốc và ở các lãnh thổ thuộc quyền quản lý của mình, công nhận và thực hiện những quyền

Cyrillic

А Б В Г Д Е Ж З И Й К Л М Н О
П Р С Т У Ф Х Ц Ч Ш Щ Ў Я
а б в г д е ж з и й к л м н о
п р с т у ф х ц ч ш щ ю я

Russian

Всеобщую декларацию прав человека в качестве задачи, к выполнению которой должны стремиться все народы и все государства с тем, чтобы каждый человек и каждый орган общества, постоянно имея в виду настоящую Декларацию, стремились путем просвещения и образования содействовать уважению этих прав и свобод и обеспечению, путем национальных и международных прогрессивных мероприятий

Greek

ΑΒΓΔΕΖΗΘΙΚΛΜΝ
ΞΟΠΡΣΤΥΦΧΨΩ
αβγδεζηθικλμν
ξοπρστυφχψω

Greek

οποίο πρέπει να κατατείνουν όλοι οι λαοί και όλα τα έθνη, έτσι ώστε κάθε άτομο και κάθε όργανο της κοινωνίας, με τη διακήρυξη αυτή διαρκώς στη σκέψη, να καταβάλλει, με τη διδασκαλία και την παιδεία, κάθε προσπάθεια για να αναπτυχθεί ο σεβασμός των ανθρώπινων δικαιωμάτων και των ελευθεριών αυτών, και να εξασφαλιστεί προοδευτικά, με εσωτερικά και διεθνή μέσα, η παγκόσμια και αποτελεσματική εφαρμογή τους

San Francisco

San Francisco

New typeface called San Francisco

San Francisco

New typeface called San Francisco

iOS and OS X make use of a new font family called SF

San Francisco

New typeface called San Francisco

iOS and OS X make use of a new font family called SF

Watch family renamed to SF Compact

San Francisco

New typeface called San Francisco

iOS and OS X make use of a new font family called SF

Watch family renamed to SF Compact

Families have similar proportions

San Francisco

New typeface called San Francisco

iOS and OS X make use of a new font family called SF

Watch family renamed to SF Compact

Families have similar proportions

SF and SF Compact are related but different designs

Introducing San Francisco.
The system font for iOS, OS X, and watchOS.

SF

Download Fonts and Resources

Get your apps ready with the latest beta versions of the Apple San Francisco font for iOS 9, OS X El Capitan, and watchOS 2. To download, sign in with your Apple ID associated with your Apple Developer Program membership.

[Dynamic Type and Tracking Charts](#)

For iOS 9 and OS X El Capitan

[San Francisco Font](#)

For watchOS

[San Francisco Compact Font](#)

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developer.apple.com/fonts

Download Info

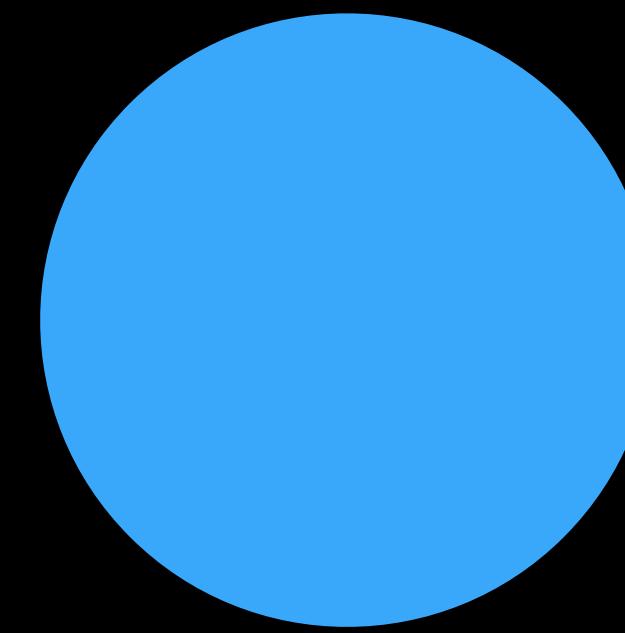
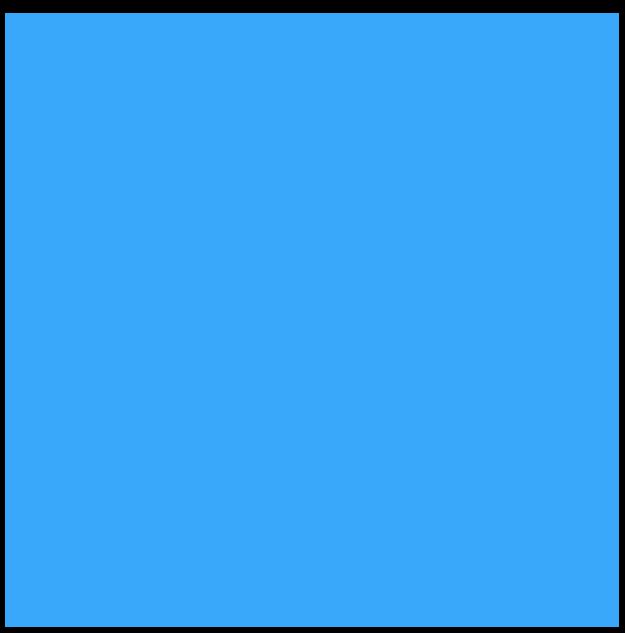
BETA

Apple Fonts and Text Page
developer.apple.com/fonts

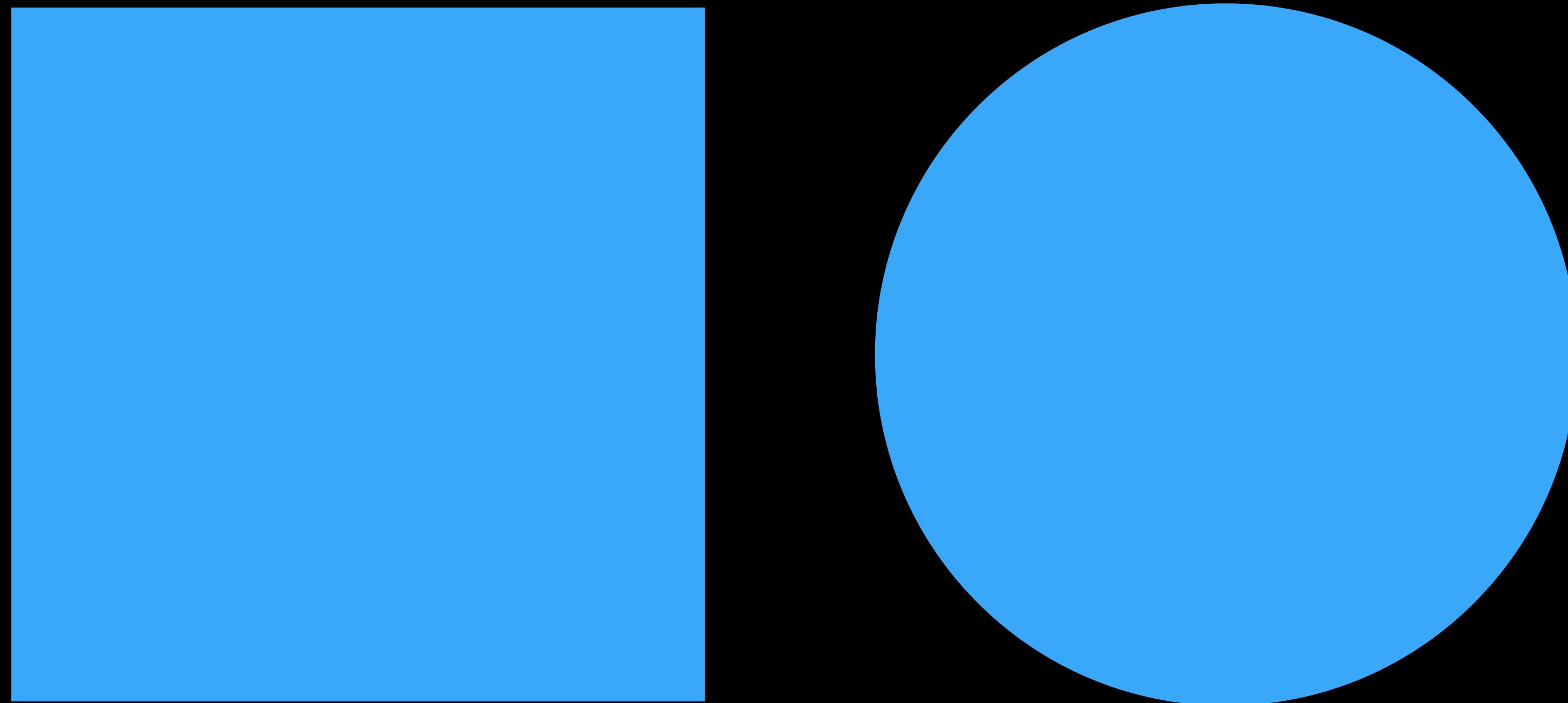
Principles

Visual perception is
largely about illusion

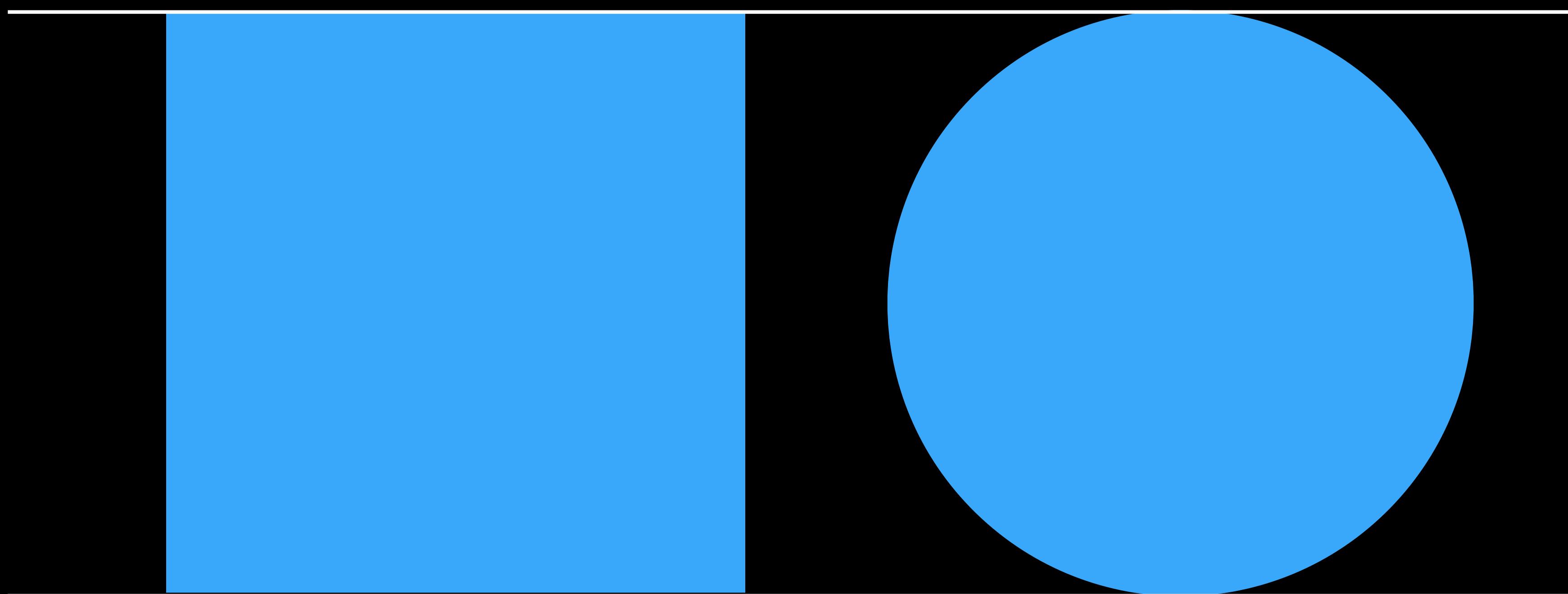
Equalizing Height



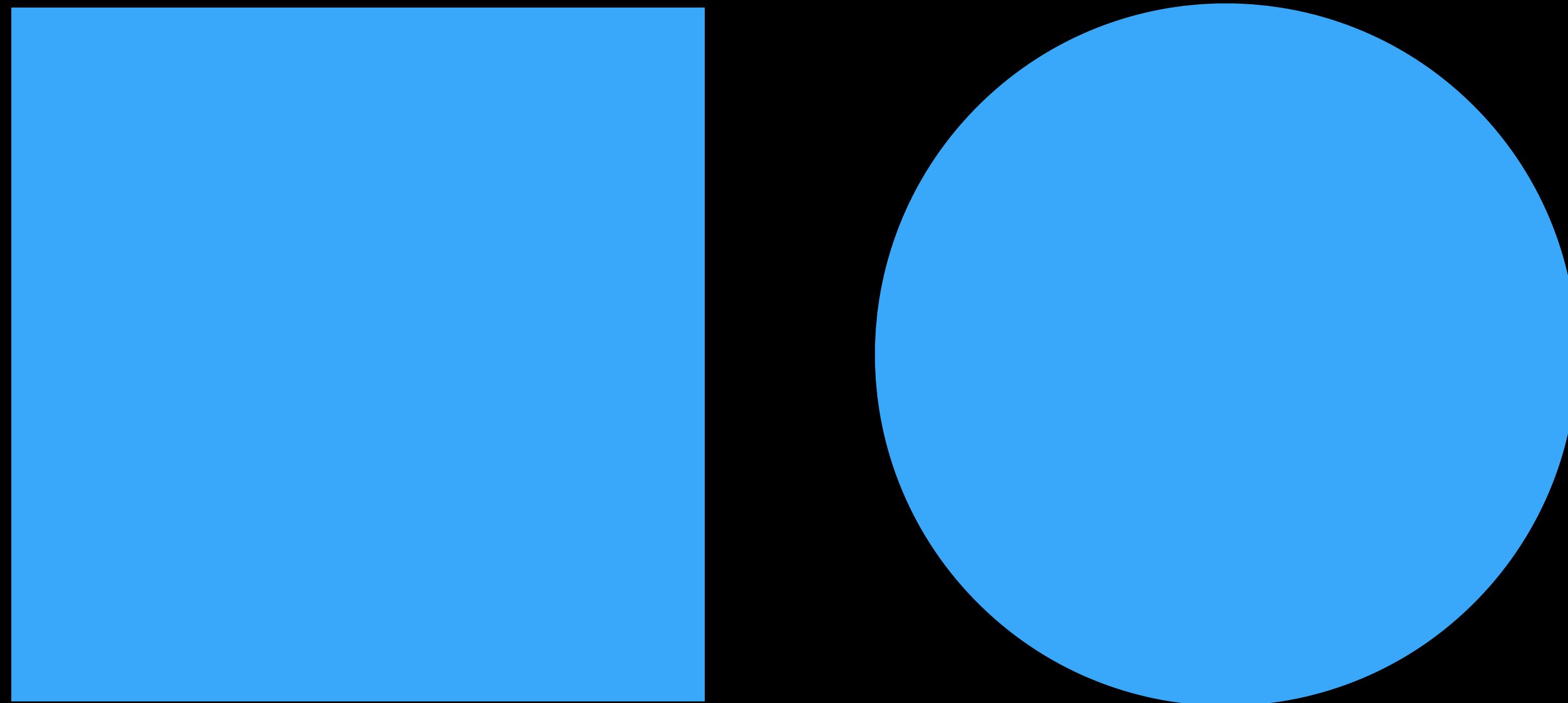
Equalizing Height



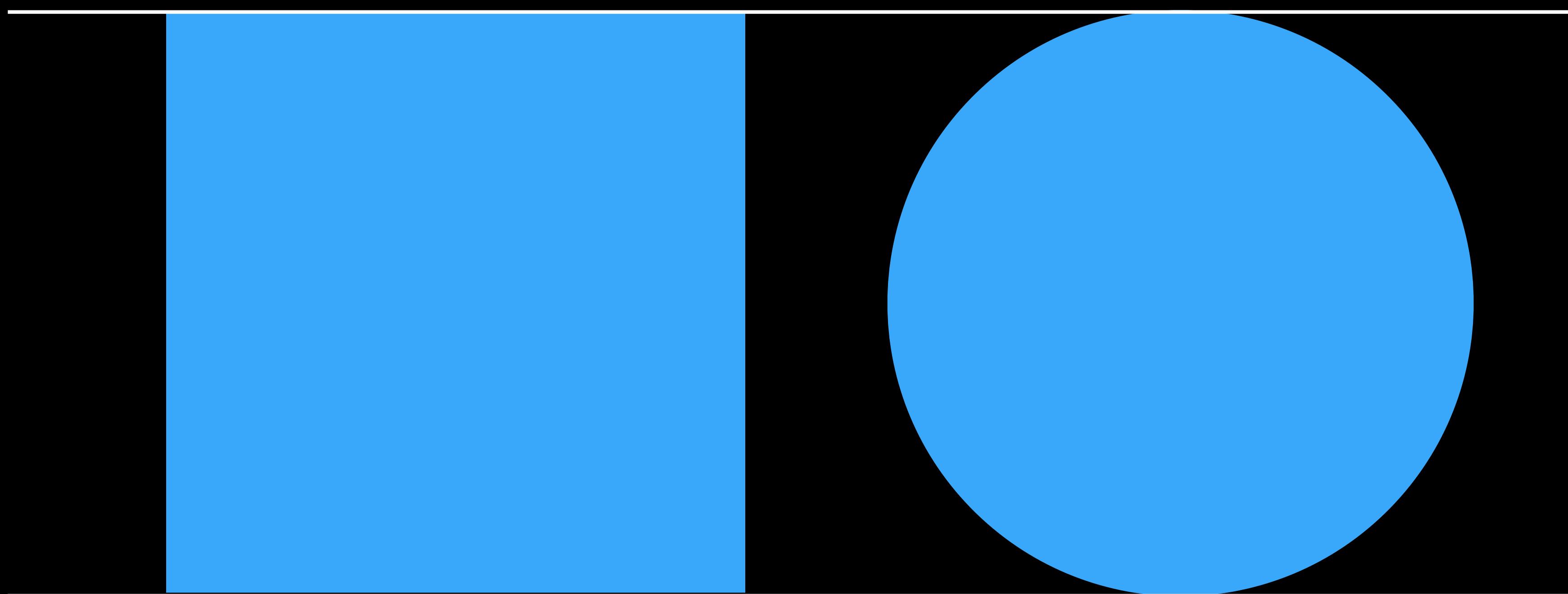
Equalizing Height



Equalizing Height

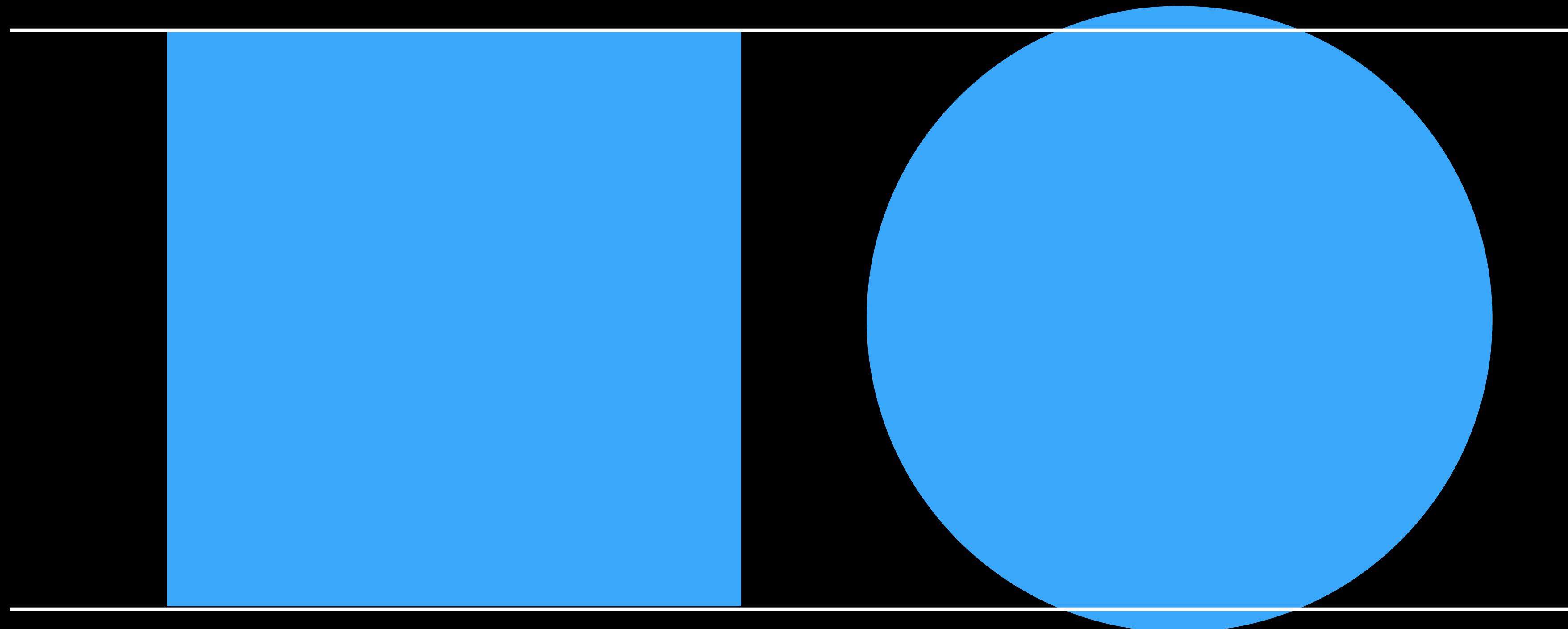


Equalizing Height



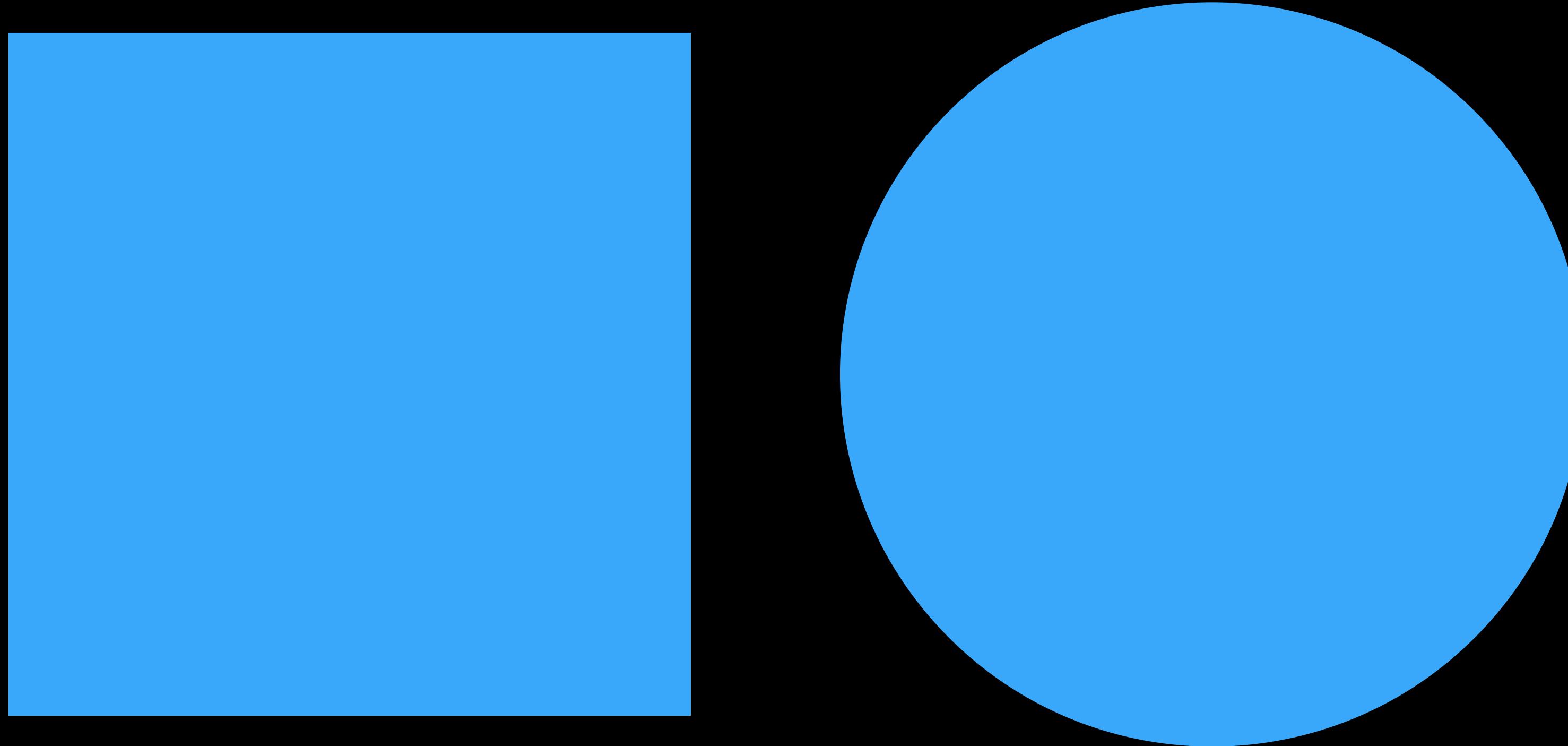
Equalizing Height

Overshoot

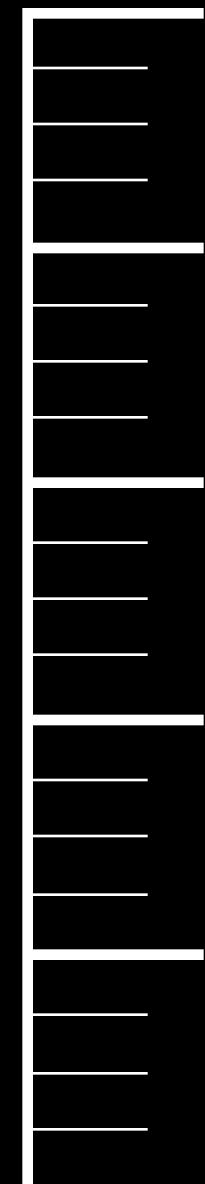
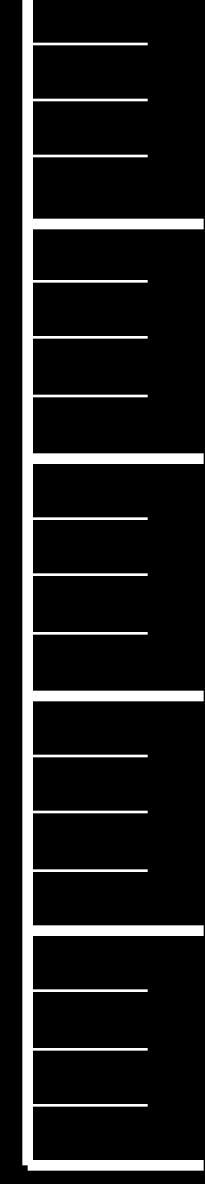


Equalizing Height

Overshoot



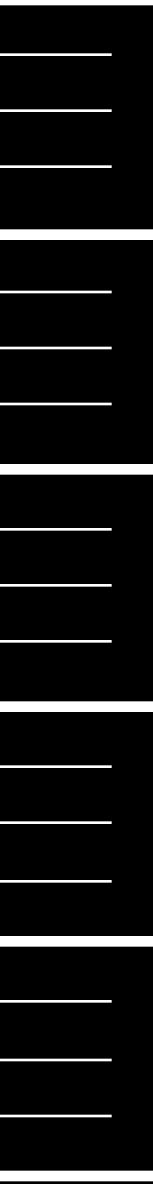
To make two shapes look similar,
they often have to be made dissimilar



To make two shapes look similar,
they often have to be made dissimilar

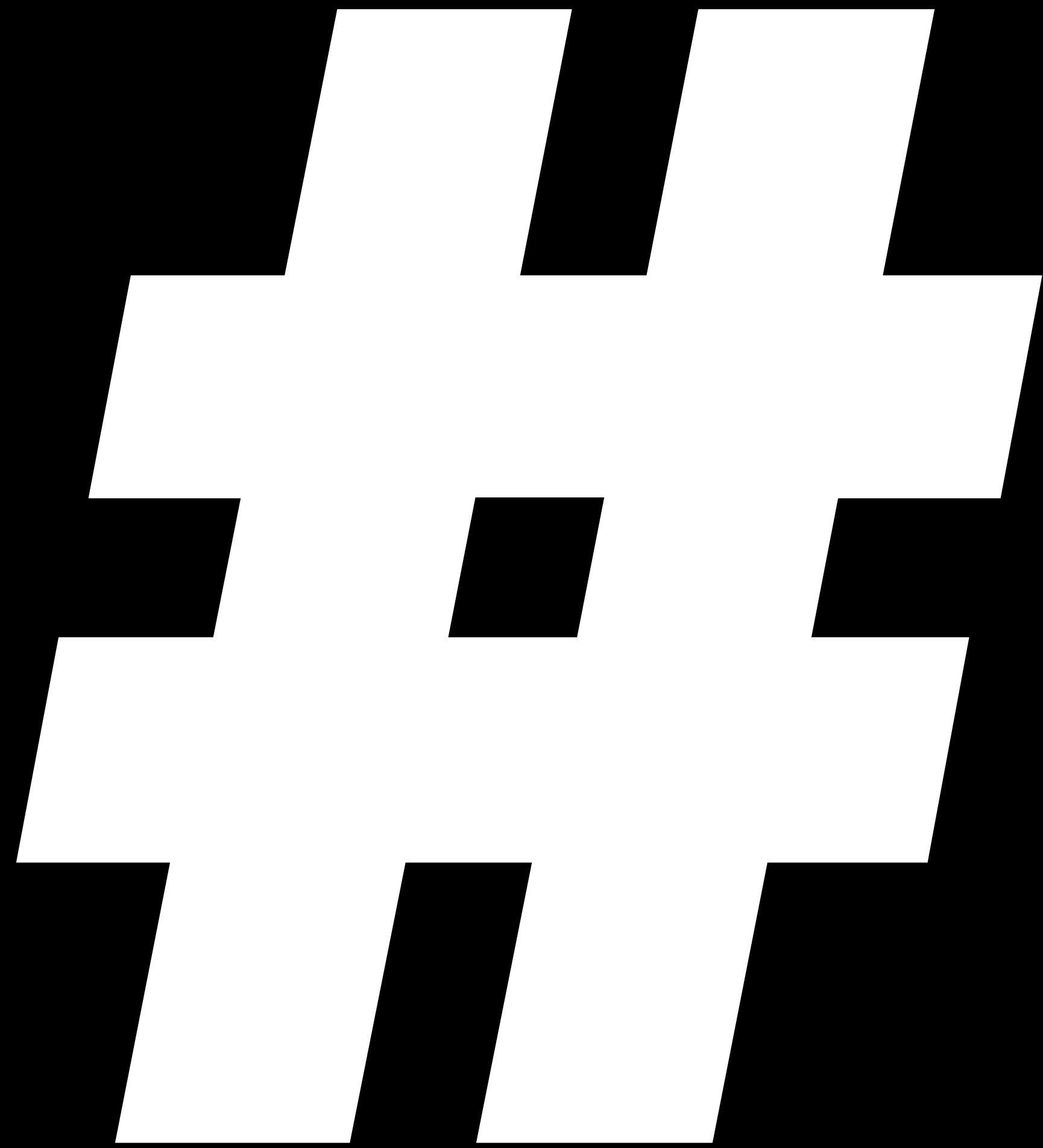


To make two shapes look similar,
they often have to be made dissimilar

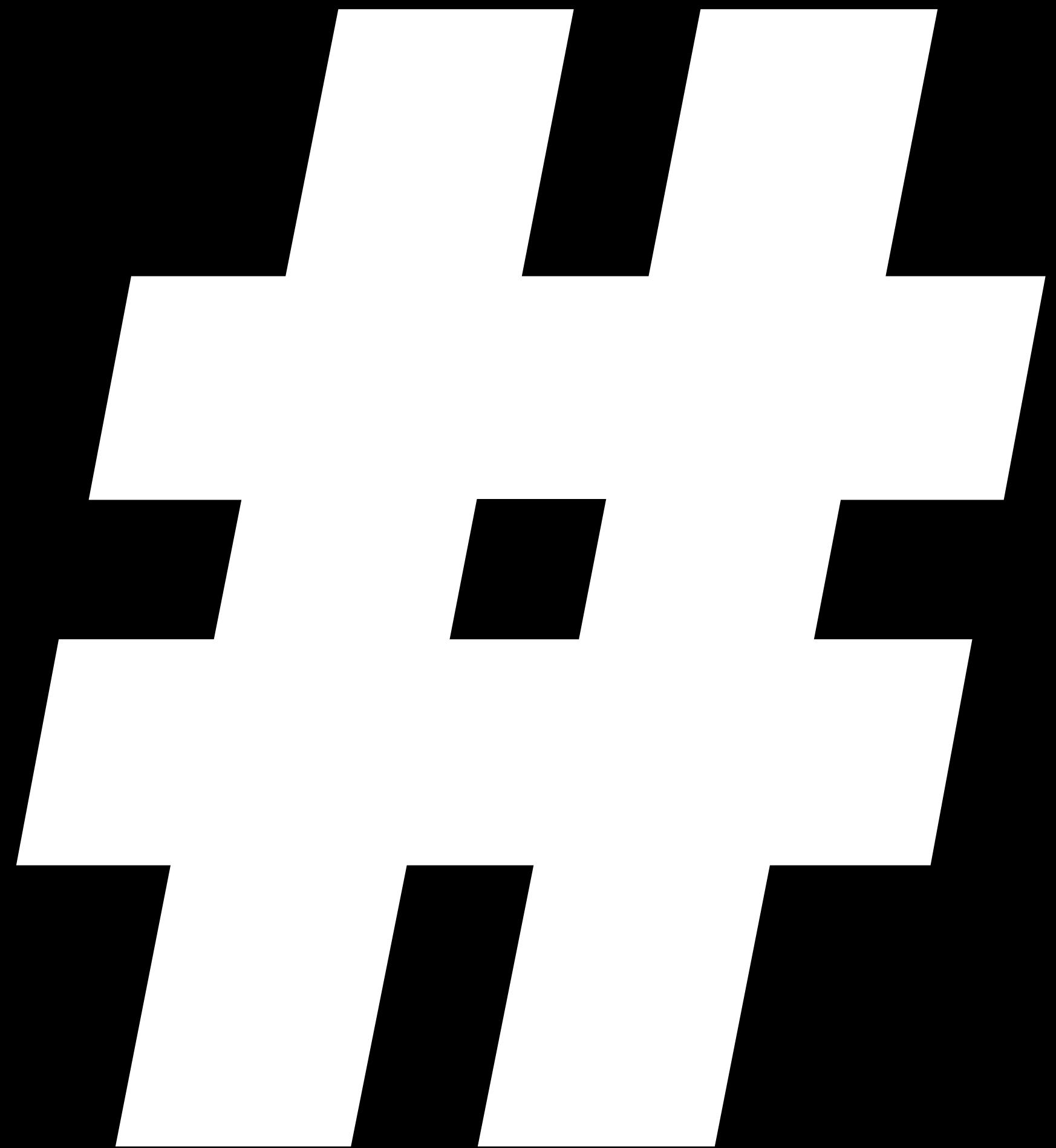


To make two shapes look similar,
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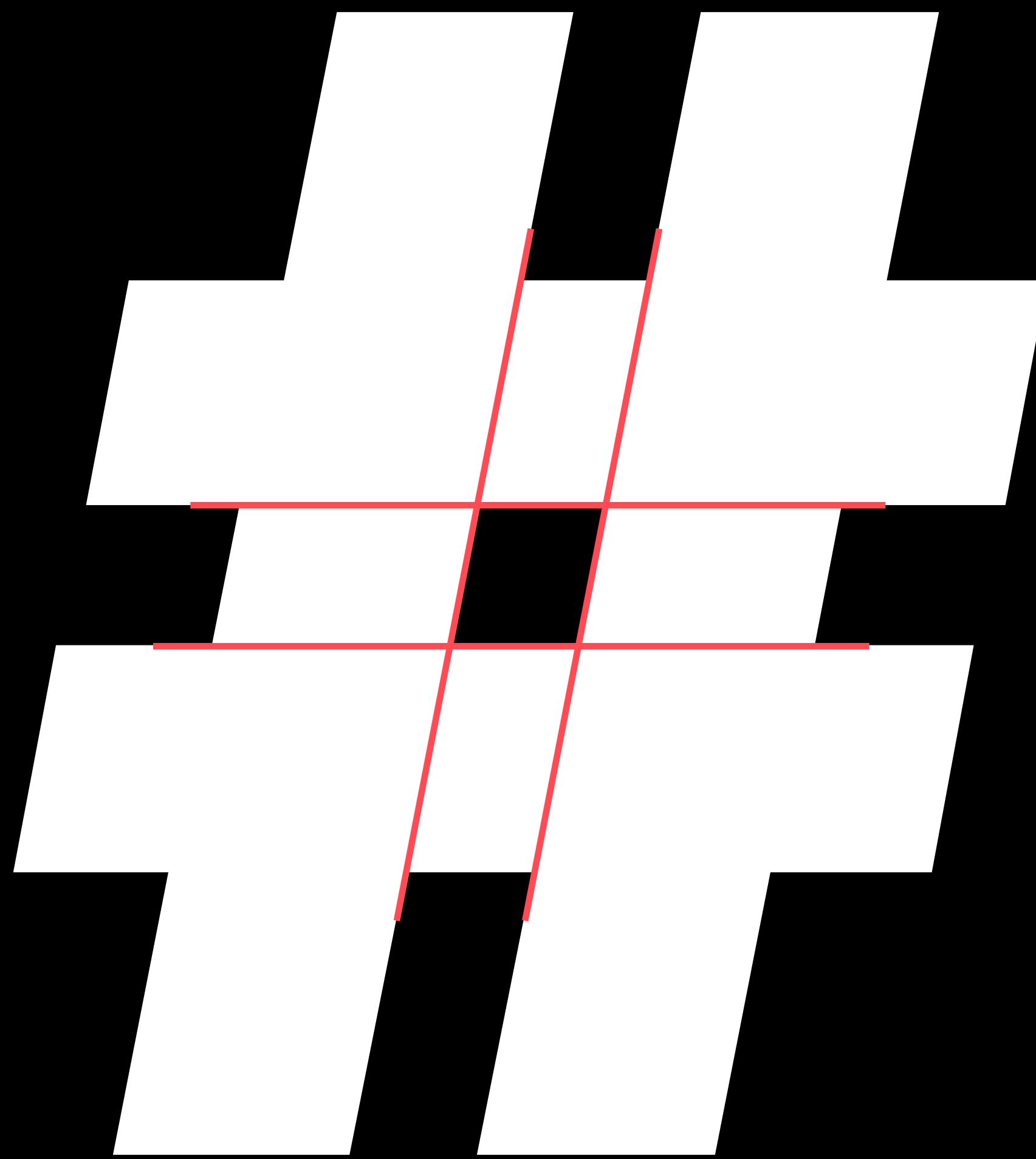
Bonus



Bonus: Octothorpe



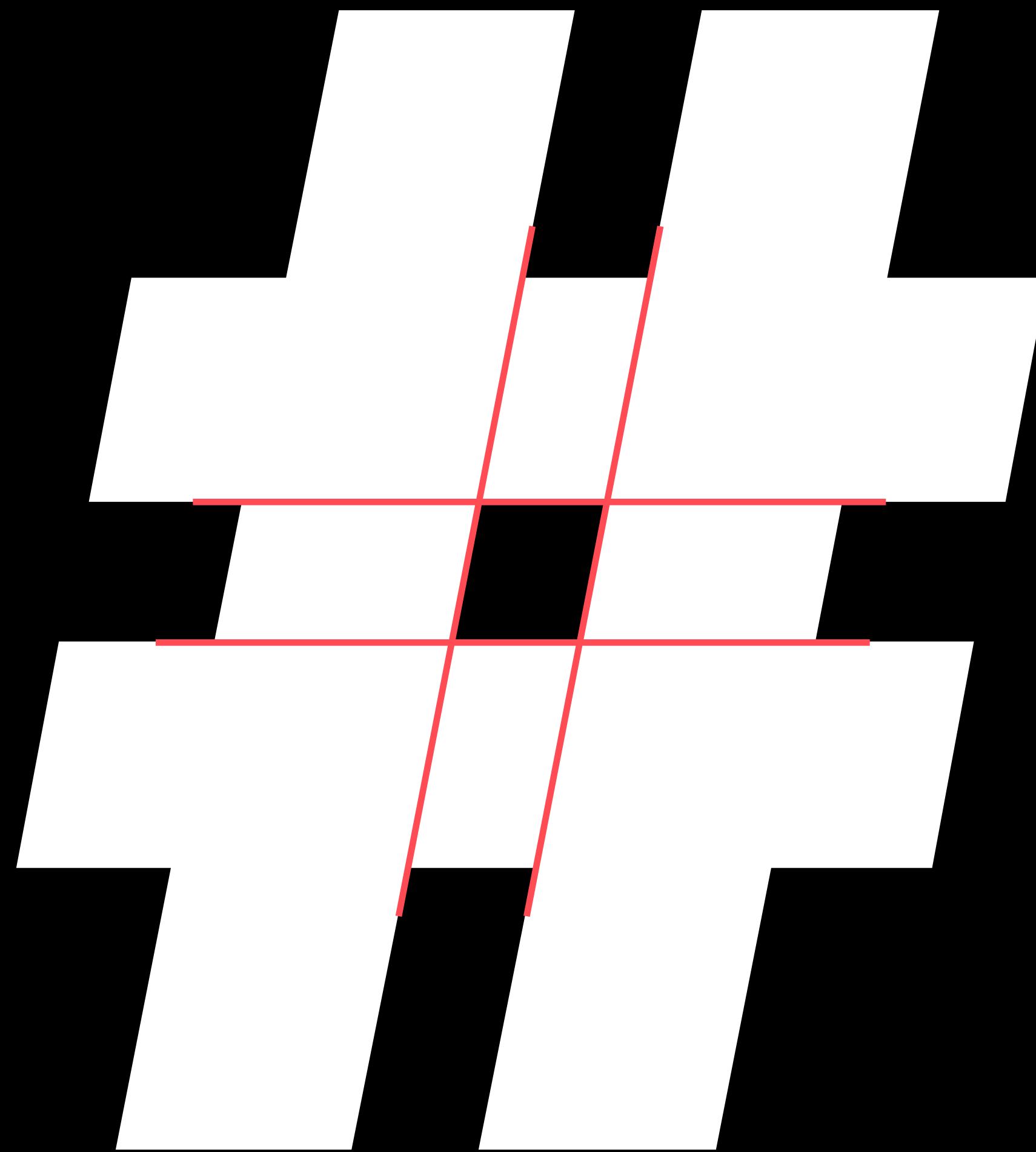
Bonus: Octothorpe



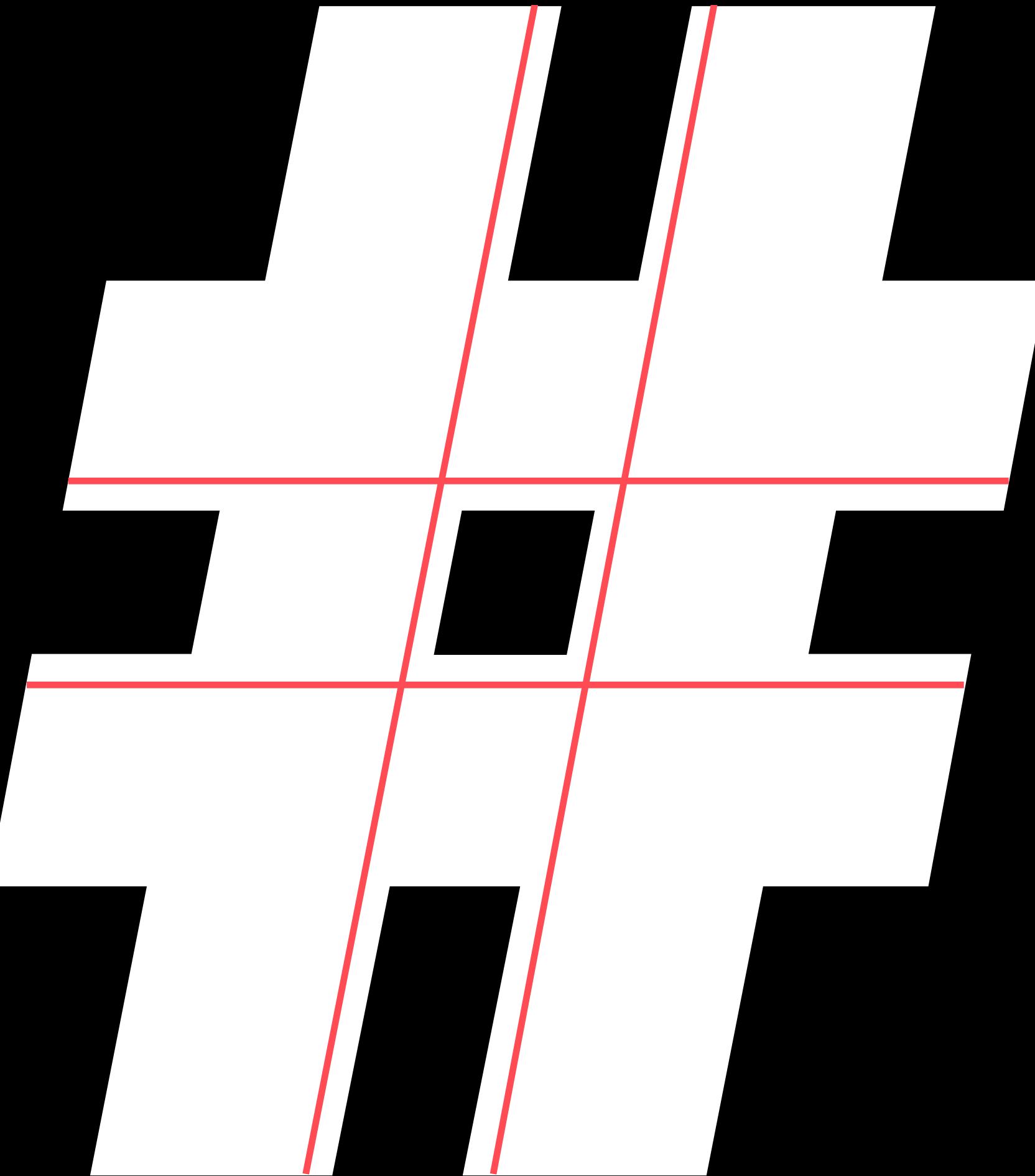
Bonus: Octothorpe

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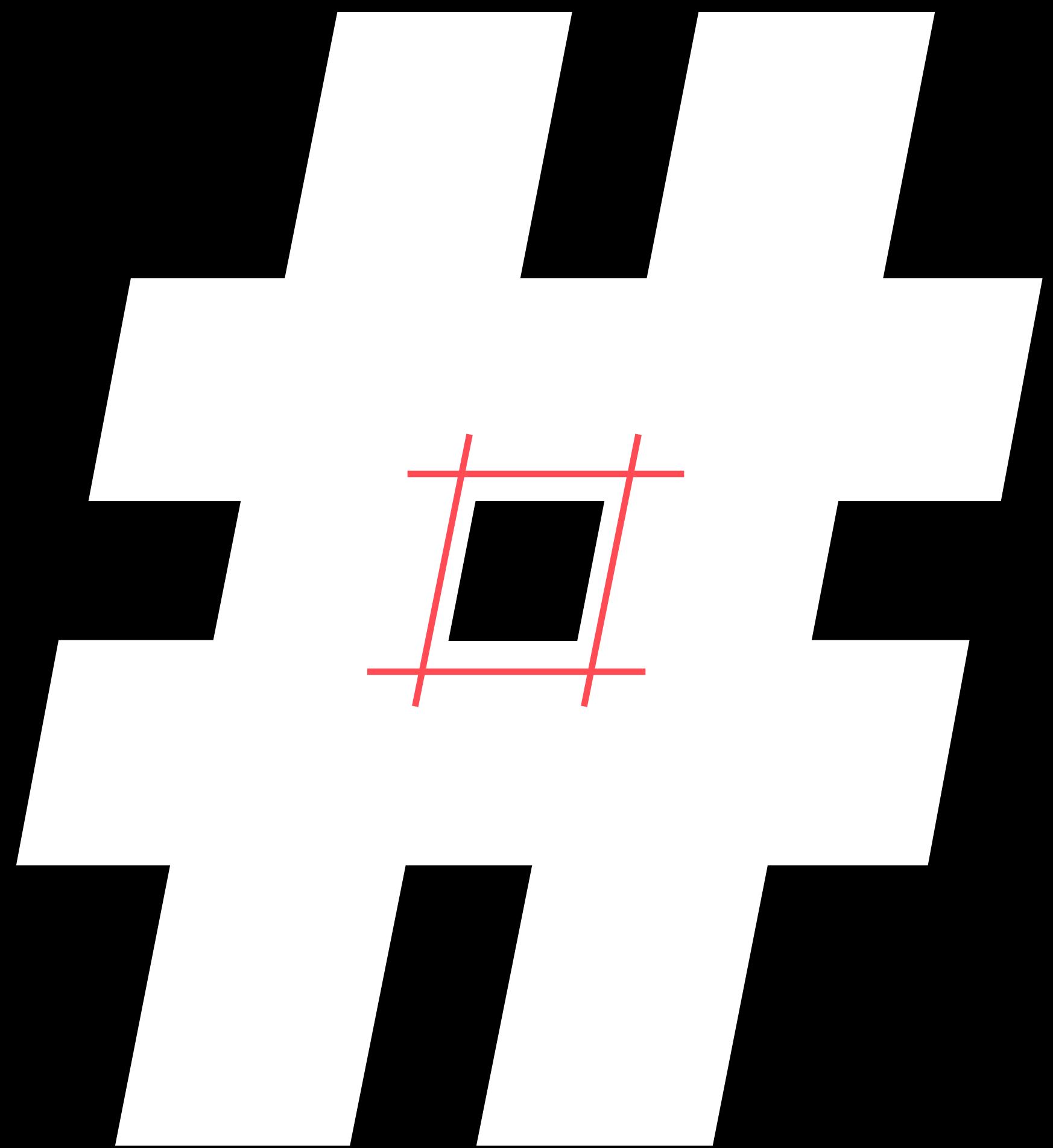
Bonus: Octothorpe



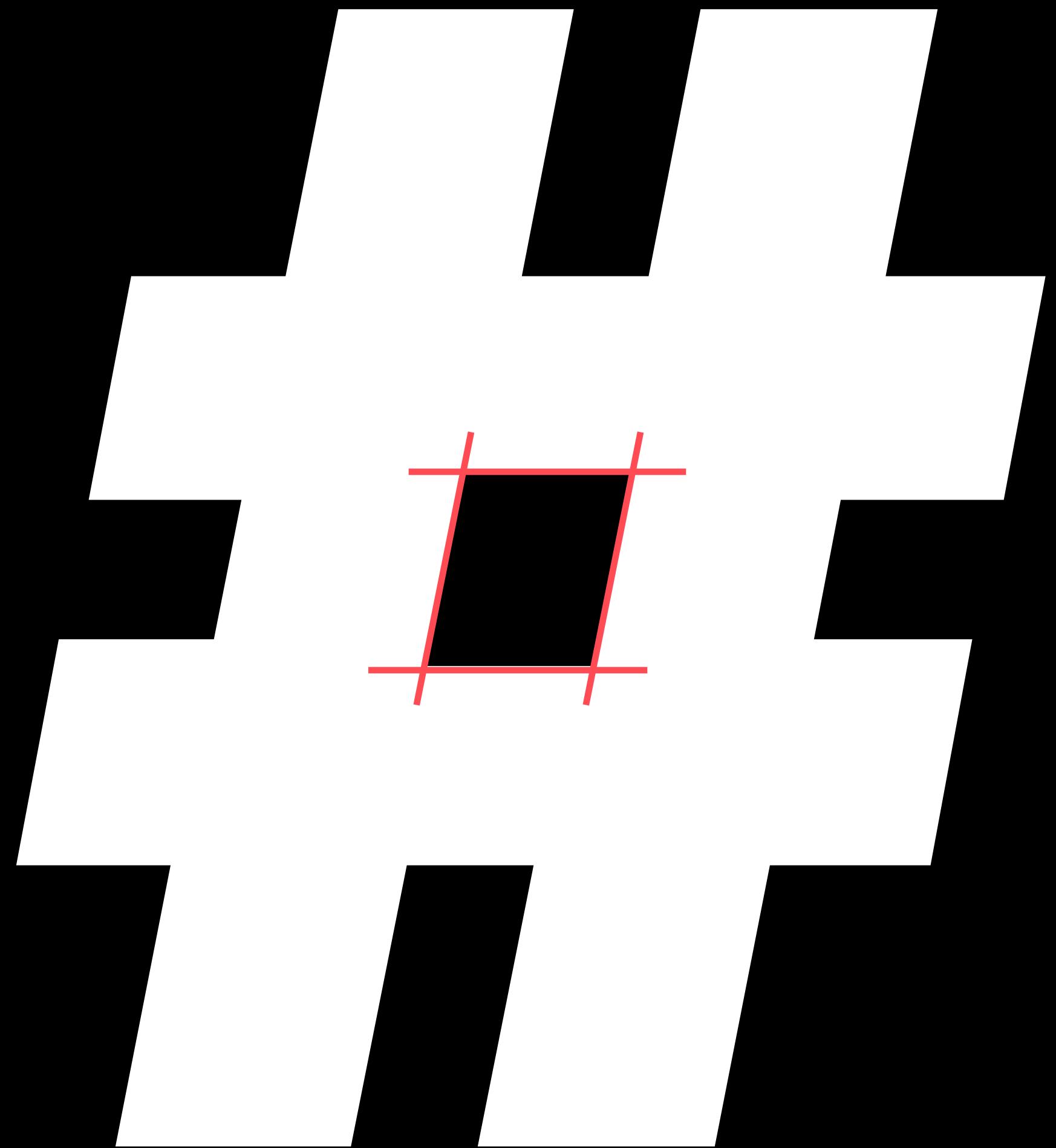
Bonus: Octothorpe



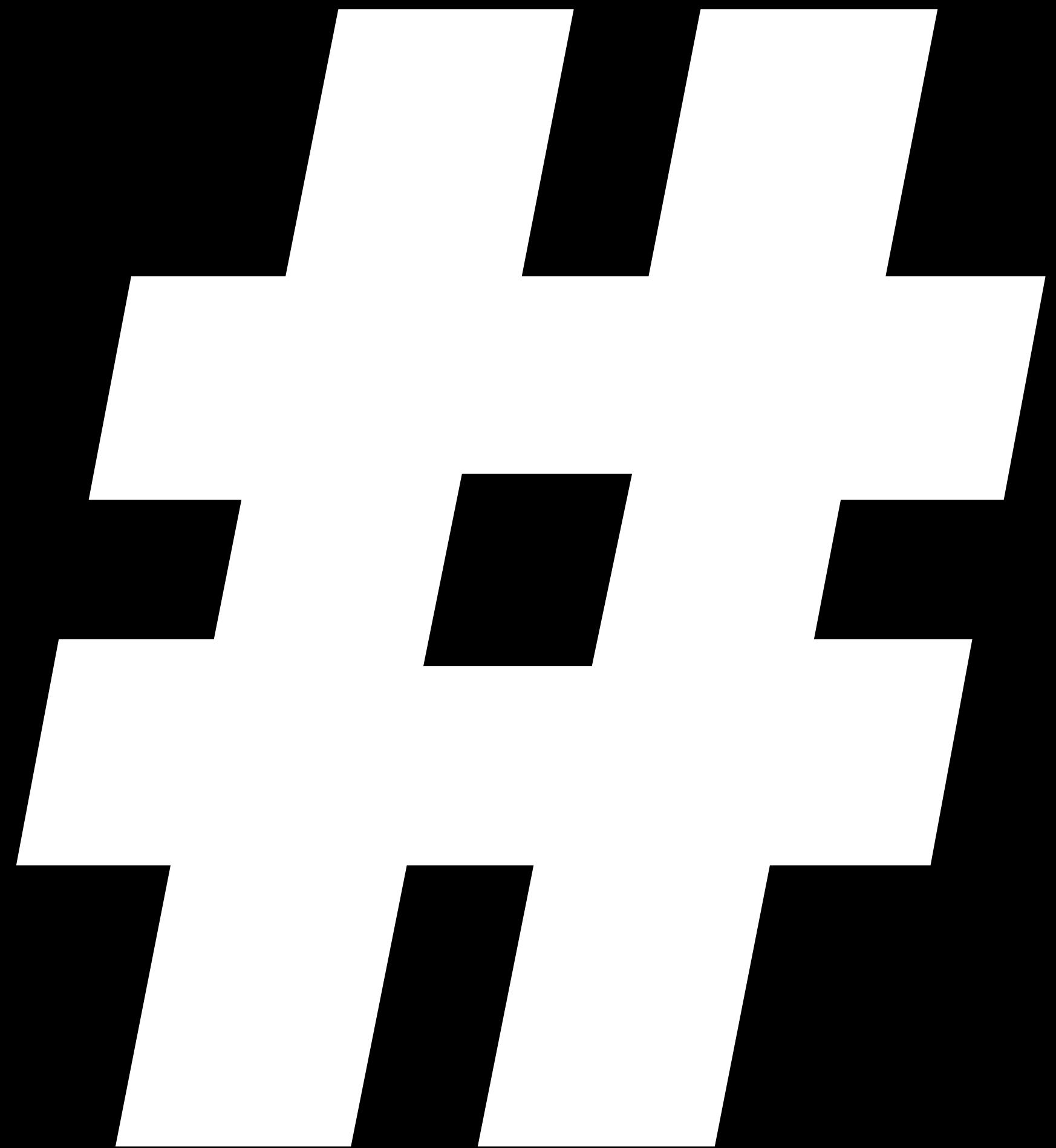
Bonus: Octothorpe



Bonus: Octothorpe



Bonus: Octothorpe



Visual perception is
largely about illusion

Optical Sizes

Optical Sizes



Same Font, Different Sizes

120pt

hamburgefonstiv

Same Font, Different Sizes

120pt

hamburgefonstiv

15pt

hamburgefonstiv

Same Font, Different Sizes

hamburgefonstiv

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Same Font, Different Sizes

hamburgefonstiv

hamburgefonstiv

Display Versus Text

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Display Versus Text

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Negative Space

influence on STEM

influence on STEM

Negative Space

FLICKERED COLOUR

MARSHAL COLOUR

Negative Space

an orange nose ▼

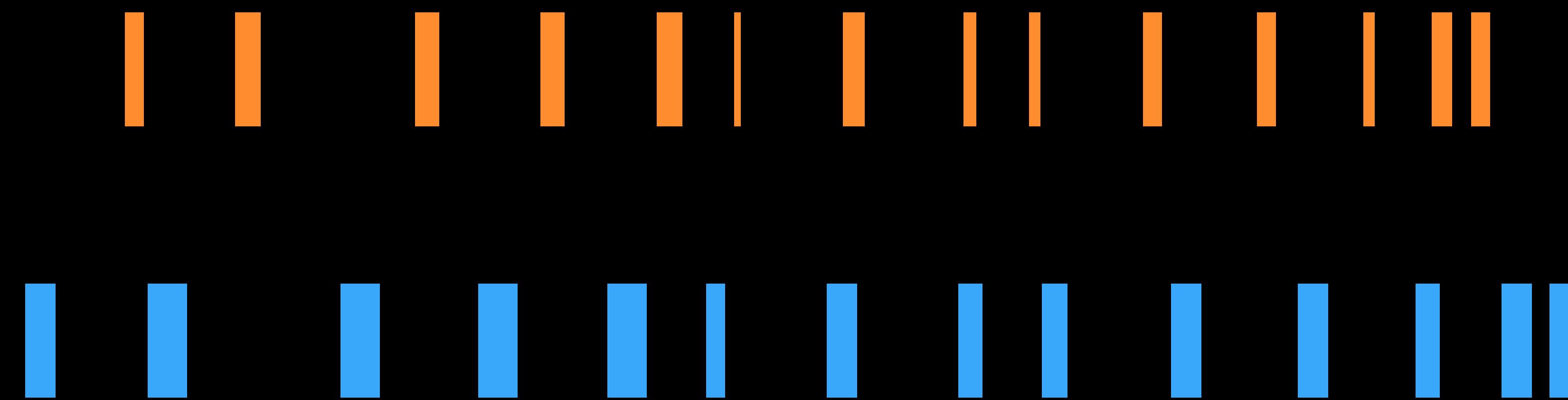
an orange nose ▼

Negative Space

hamburgefonstiv

hamburgefonstiv

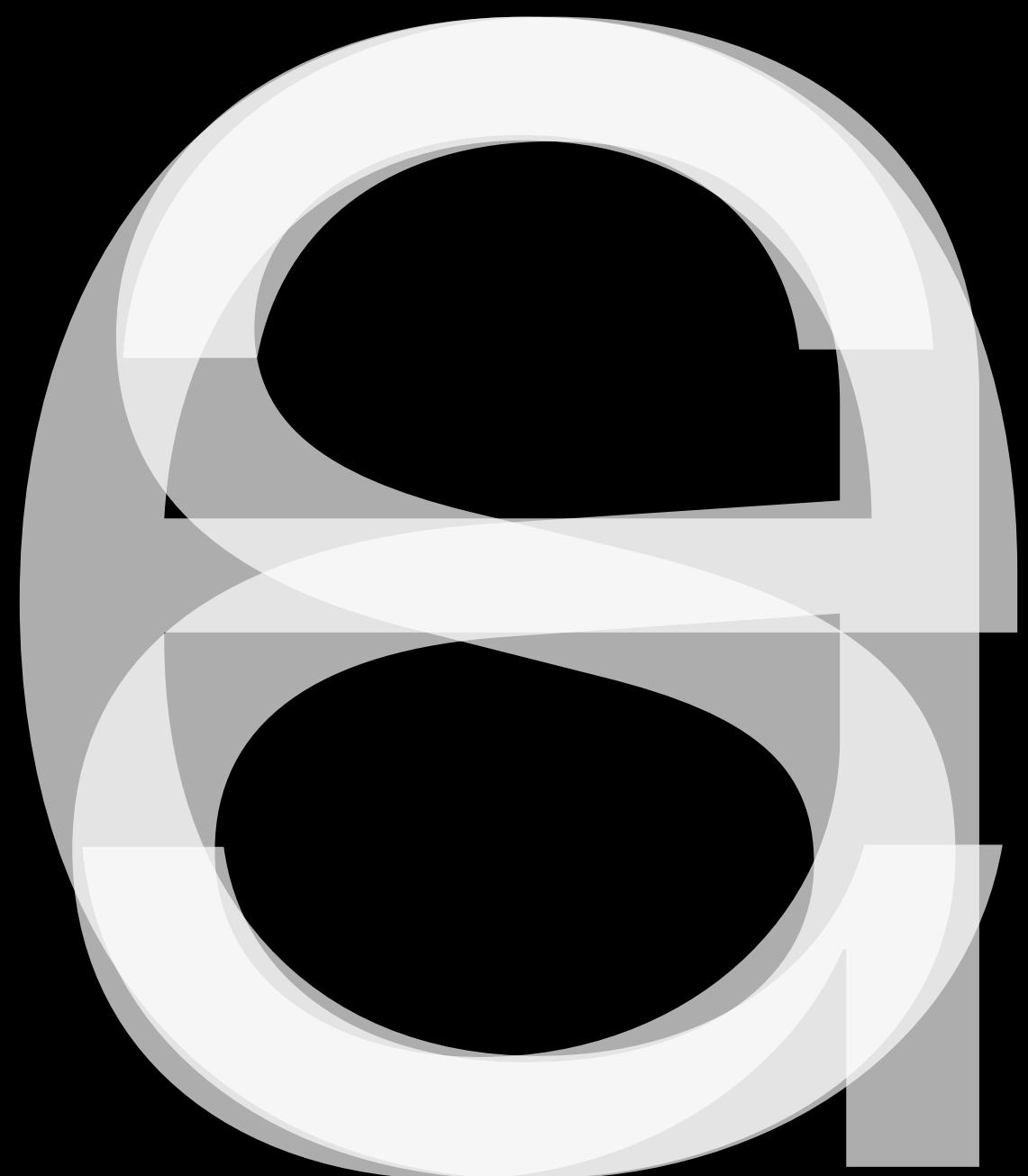
Negative Space



Confusable Shapes

s a e

Confusable Shapes



Confusable Shapes



Confusable Shapes



Confusable Shapes

stage

Confusable Shapes



Display Versus Text

hamboou

Display Versus Text

hamburgef

hamburgε



Display Versus Text

hamburgers

hamburgers



Display Versus Text

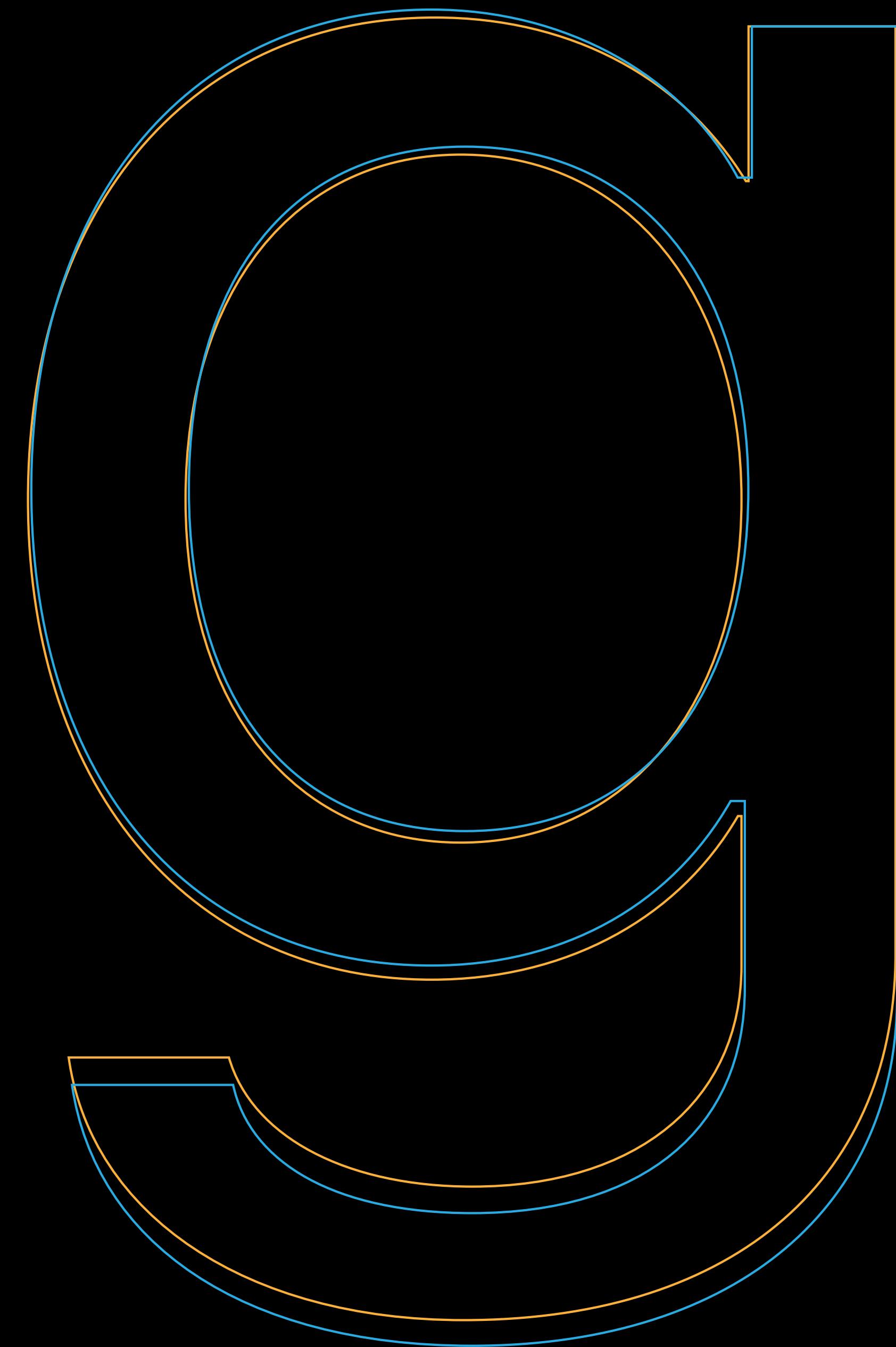
hamburgef

hamburgε



Display Versus Text

amburg^gefons
amburg^gefons



Display Versus Text

amburg^gefons
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Display Versus Text

gefondstiv



Display Versus Text

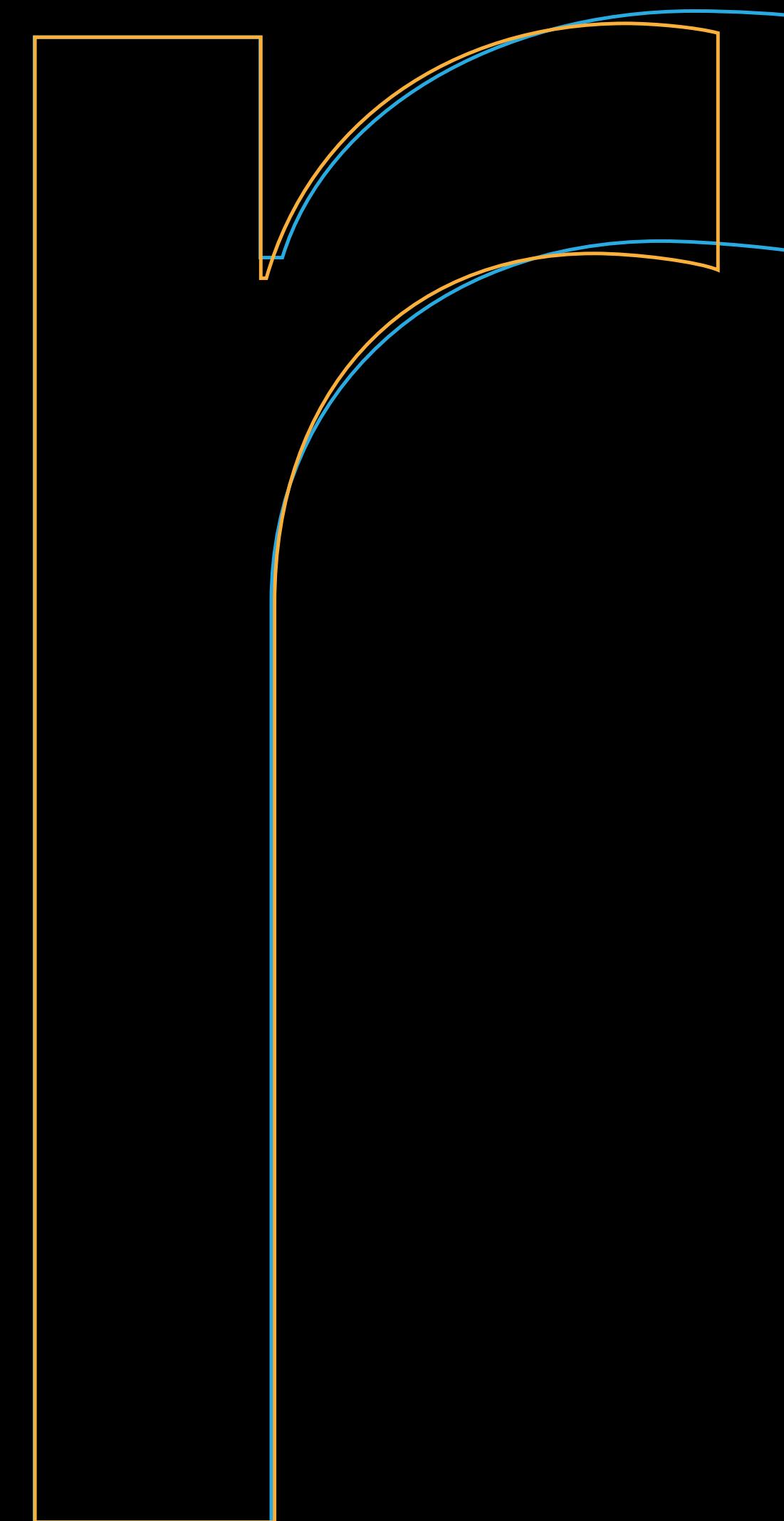
gefonstiv

gefonstiv



Display Versus Text

amburg[**r**gefon:
amburg[**r**gefor



Display Versus Text

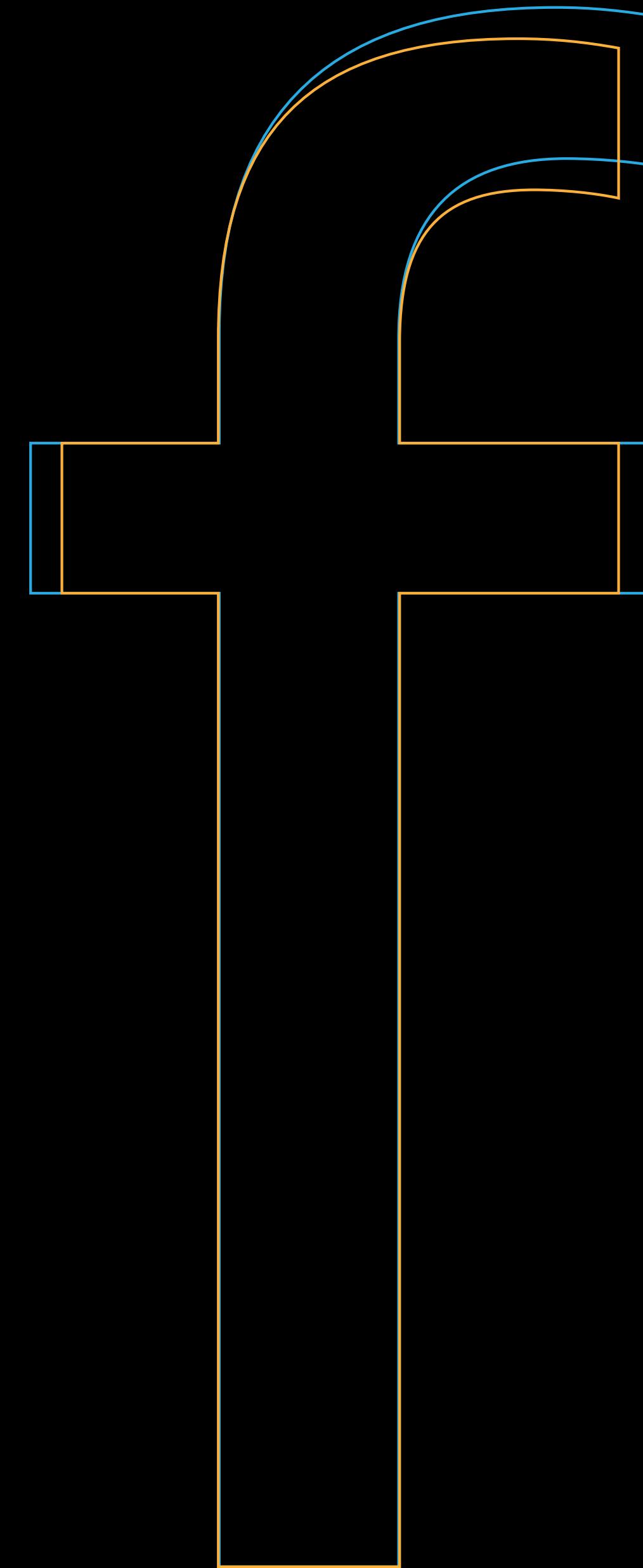
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Display Versus Text

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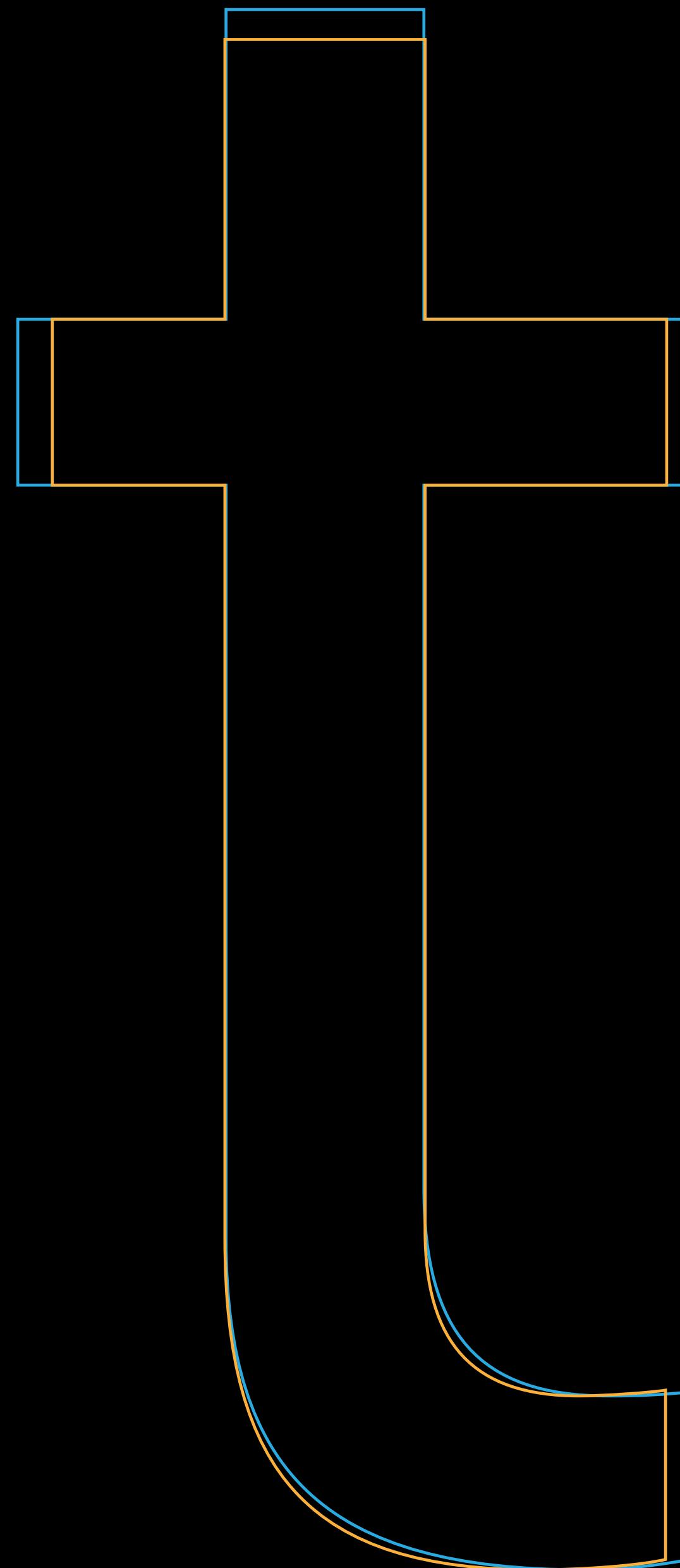
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Display Versus Text

Jefonstiv

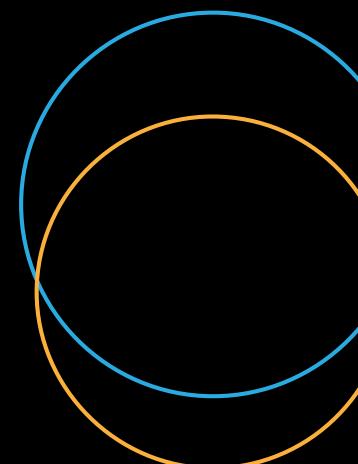
Jefonstiv



Display Versus Text

efonstiv

fonstiv



Display Versus Text

	40pt	hamburgefonstiv
	30pt	hamburgefonstiv
Display	20pt	hamburgefonstiv
Text	19pt	hamburgefonstiv
	18pt	hamburgefonstiv
	17pt	hamburgefonstiv
	16pt	hamburgefonstiv

Optical Sizes

Optical Sizes

Two optical, size-specific families—Text and Display

Optical Sizes

Two optical, size-specific families—Text and Display

The system automatically switches at 20pt

Optical Sizes

Two optical, size-specific families—Text and Display

The system automatically switches at 20pt

No adoption necessary

Optical Sizes

Two optical, size-specific families—Text and Display

The system automatically switches at 20pt

No adoption necessary

App designers need to be aware of the difference

Tracking

Tracking

hamburgfonstiv

Tracking

hamburgefonstiv

Tracking Versus Kerning

H H H O O O H H H

Tracking

Positive

H H H H H O O O O H H H H H

Tracking

ННННООООННН

Tracking Negative

H H H H H O O O O H H H H H

Tracking Negative

ННННООООННН

Tracking Negative

H H H H O O O O H H H

Kerning

H H H H O O O O H H H H

Kerning

H H H H O O O O H H H H

Kerning

HHHHOOOOHHHH

HHHHHLTHHH

Kerning

H H H H O O O O H H H H

H H H H H L T H H H

Kerning

Negative

H H H H O O O O H H H

H H H H H L T H H H H

Tracking Versus Kerning

H H H O O O O H H H

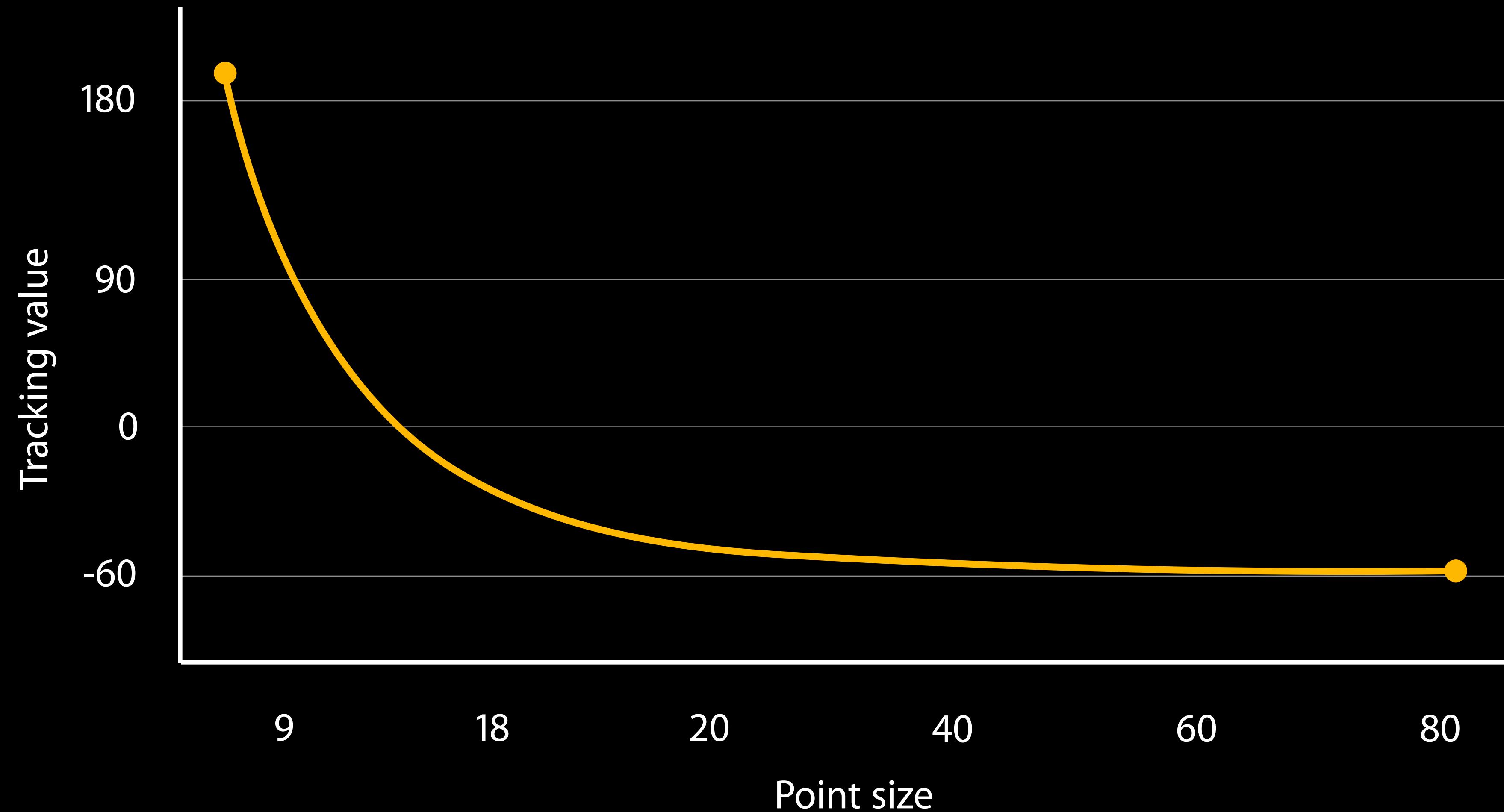
H H H H L T H H H H

Tracking Versus Kerning

H H H H H O O O O H H H H H

H H H H H L T H H H H H

Tracking Is Size-Specific



Tracking Is Size-Specific

	40pt	10T	hamburgefonstiv
	30pt	11T	hamburgefonstiv
Display	20pt	19T	hamburgefonstiv
Text	19pt	-25T	hamburgefonstiv
	18pt	-24T	hamburgefonstiv
	17pt	-24T	hamburgefonstiv
	16pt	-20T	hamburgefonstiv

Tracking Summary

Tracking Summary

Tracking is automatically enabled for System Font

Tracking Summary

Tracking is automatically enabled for System Font

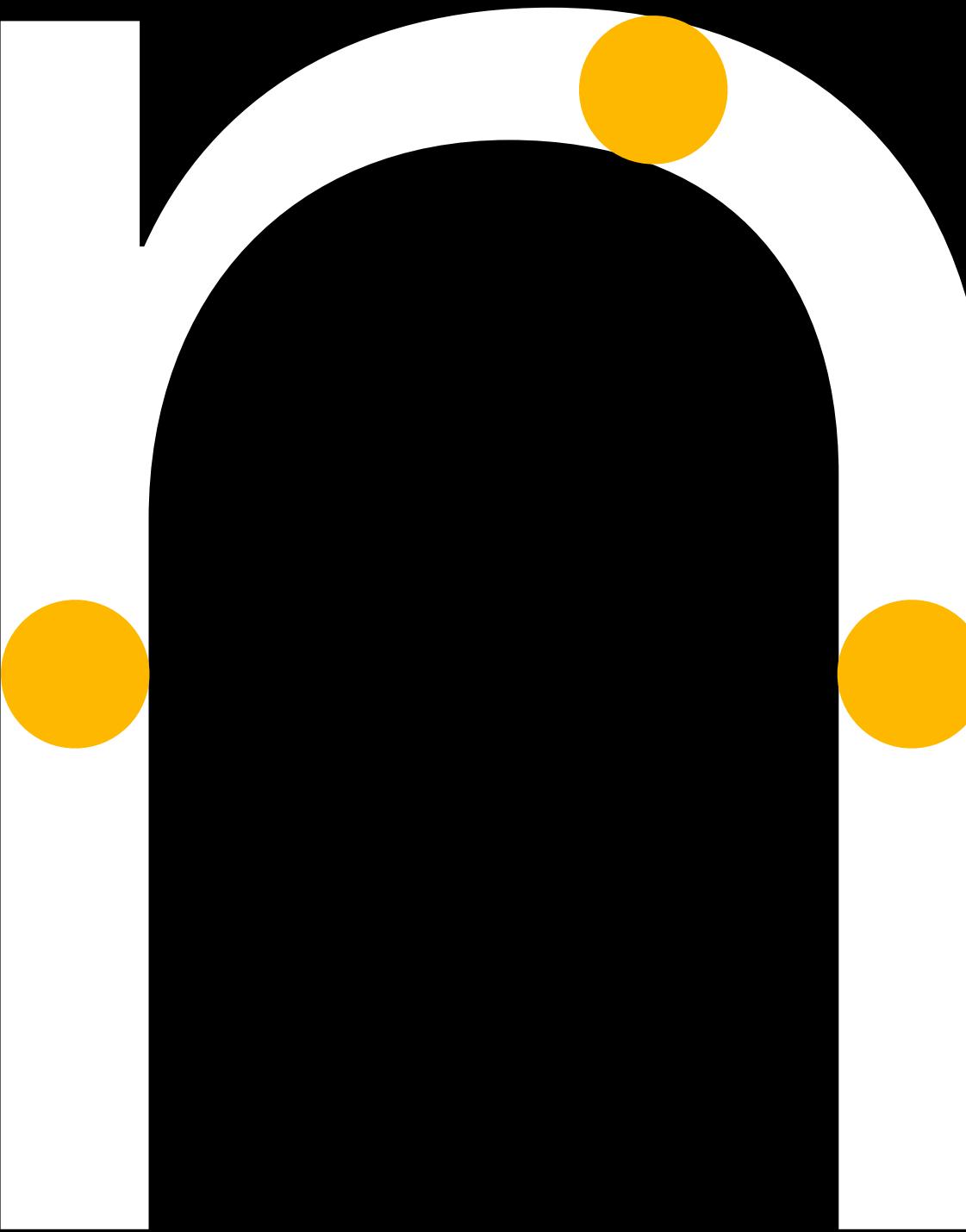
For designers, we provide the tracking tables that System Font supports

Weights

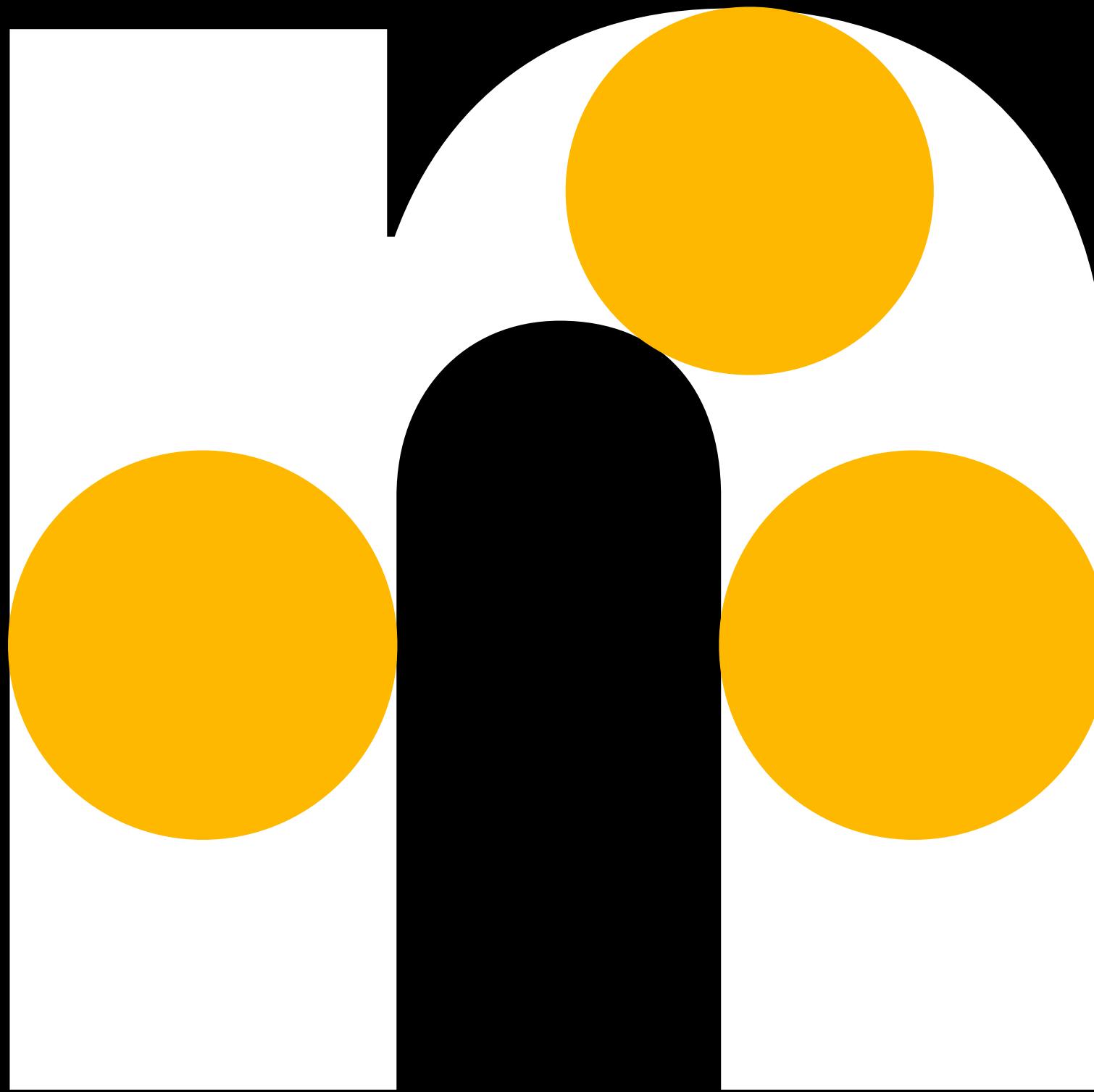
Font Weight

I

Font Weight



Font Weight



Text Weights

Light

Regular

Medium

Semibold

Bold

Heavy

Text Weights

Light

Light Italic

Regular

Regular Italic

Medium

Medium Italic

Semibold

Semibold Italic

Bold

Bold Italic

Heavy

Heavy Italic

Display Weights

Ultralight

Thin

Light

Regular

Medium

Semibold

Bold

Heavy

Black

Display Weights

Ultralight

Thin

Light

Regular

Medium

Semibold

Bold

Heavy

Black



Display Weights

To be the first to enter the cosmos, to engage, single-handed, in an unprecedented duel with nature—could one dream of anything more? We choose to go to the moon in this decade and do the other things, not because they are easy, but because they are hard, because that goal will serve to organize and measure the best of our energies and skills, because that challenge is one that we are willing to accept, one we are unwilling to postpone, and one which we intend to win. Here men from the planet Earth first set foot upon the Moon. July 1969 AD. We came in peace for all mankind. Here men from the planet Earth first set foot upon the Moon. July 1969 AD. We came in peace for all mankind. Never in all their history have men been able truly to conceive of the world as one: a single sphere, a globe, having the qualities of a globe, a round earth in which all the directions eventually meet, in which there is no center because every point, or none, is center — an equal earth which all men occupy as equals. The airman's earth, if free men make it, will be truly round: a globe in practice, not in theory.

To be the first to enter the cosmos, to engage, single-handed, in an unprecedented duel with nature—could one dream of anything more? We choose to go to the moon in this decade and do the other things, not because they are easy, but because they are hard, because that goal will serve to organize and measure the best of our energies and skills, because that challenge is one that we are willing to accept, one we are unwilling to postpone, and one which we intend to win. Here men from the planet Earth first set foot upon the Moon. July 1969 AD. We came in peace for all mankind. Here men from the planet Earth first set foot upon the Moon. July 1969 AD. We came in peace for all mankind. Never in all their history have men been able truly to conceive of the world as one: a single sphere, a globe, having the qualities of a globe, a round earth in which all the directions eventually meet, in which there is no center because every point, or none, is center — an equal earth which all men occupy as equals. The airman's earth, if free men make it, will be truly round: a globe in practice, not in theory.

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New Weights Adoption

NEW

New System Font weight APIs in AppKit and UIKit

New Weights Adoption

NEW

New System Font weight APIs in AppKit and UIKit

`NSFont.systemFontOfSize(SIZE, weight: WEIGHT)`

`UIFont.systemFontOfSize(SIZE, weight: WEIGHT)`

New Weights Adoption

NEW

New System Font weight APIs in AppKit and UIKit

```
NSFont.systemFontOfSize(SIZE, weight: WEIGHT)  
UIFont.systemFontOfSize(SIZE, weight: WEIGHT)
```

NSFontWeightUltraLight	UIFontWeightUltraLight
NSFontWeightThin	UIFontWeightThin
NSFontWeightLight	UIFontWeightLight
NSFontWeightRegular	UIFontWeightRegular
NSFontWeightMedium	UIFontWeightMedium
NSFontWeightSemibold	UIFontWeightSemibold
NSFontWeightHeavy	UIFontWeightHeavy
NSFontWeightBlack	UIFontWeightBlack

How to Use Weights

How to Use Weights

Differentiation and hierarchy

How to Use Weights

Differentiation and hierarchy

Similitude

How to Use Weights

Differentiation and hierarchy

Similitude

Voice

Weight-Use in Differentiation and Hierarchy

Weight-Use in Differentiation and Hierarchy

Today's weather is great.

Weight-Use in Differentiation and Hierarchy

Today's weather is great.

Weight-Use in Differentiation and Hierarchy

Weather forecasts

Monday

Tuesday

Wednesday

Thursday

Friday

Saturday

Sunday

Weight-Use in Differentiation and Hierarchy

Weather forecasts

Monday

Tuesday

Wednesday

Thursday

Friday

Saturday

Sunday

Weight Used for Similitude

Weight Used for Similitude

2

ABC

Weight Used for Similitude

Light

2

Light

ABC

Weight Used for Similitude

Light

2

Light

ABC

Light

2

Regular

ABC

Weight Used for Similitude

Larger size = Lighter weight

Smaller size = Heavier weight

Weight Used for Voice

Weight Used for Voice

Bee Weather

Monday 39°C

Tuesday 37°C

Wednesday 39°C

Thursday 38°C

Friday 37°C

Saturday 38°C

Sunday 40°C

Weight Used for Voice

Bee Weather

Monday

Tuesday

Wednesday

Thursday

Friday

Saturday

Sunday

Dove Weather

Monday 20°C

Tuesday 23°C

Wednesday 20°C

Thursday 22°C

Friday 23°C

Saturday 22°C

Sunday 20°C

Weight Used for Voice

Zebra Weather

Monday

Tuesday

Wednesday

Thursday

Friday

Saturday

Sunday

Dove Weather

Monday	20°C
--------	------

Tuesday	23°C
---------	------

Wednesday	20°C
-----------	------

Thursday	22°C
----------	------

Friday	23°C
--------	------

Saturday	22°C
----------	------

Sunday	20°C
--------	------

How to Use Weights

How to Use Weights

Legibility first

How to Use Weights

Legibility first

- Establish hierarchy with consistency and clarity

How to Use Weights

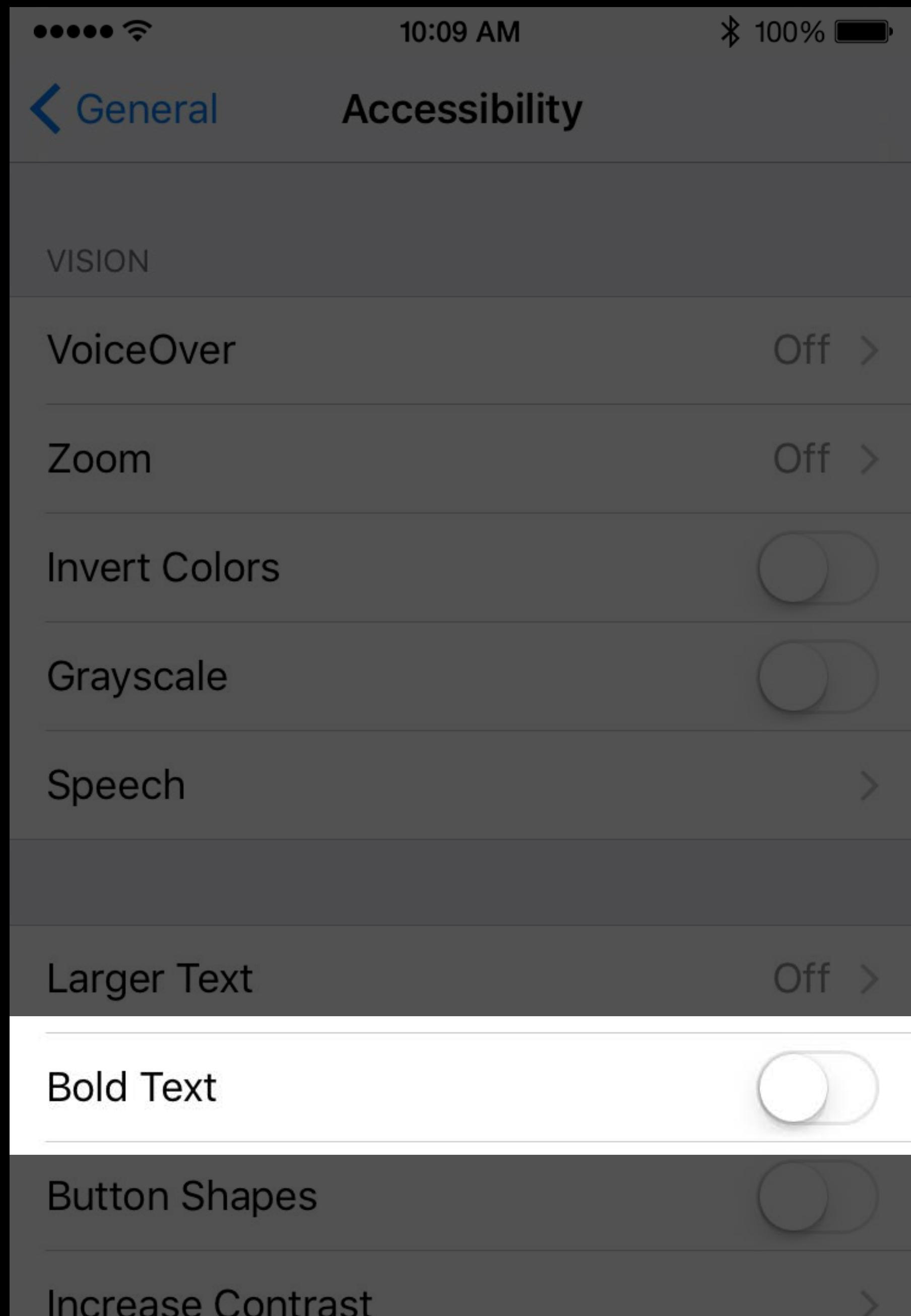
Legibility first

- Establish hierarchy with consistency and clarity
- On iOS, use Text Style APIs and adopt Dynamic Type

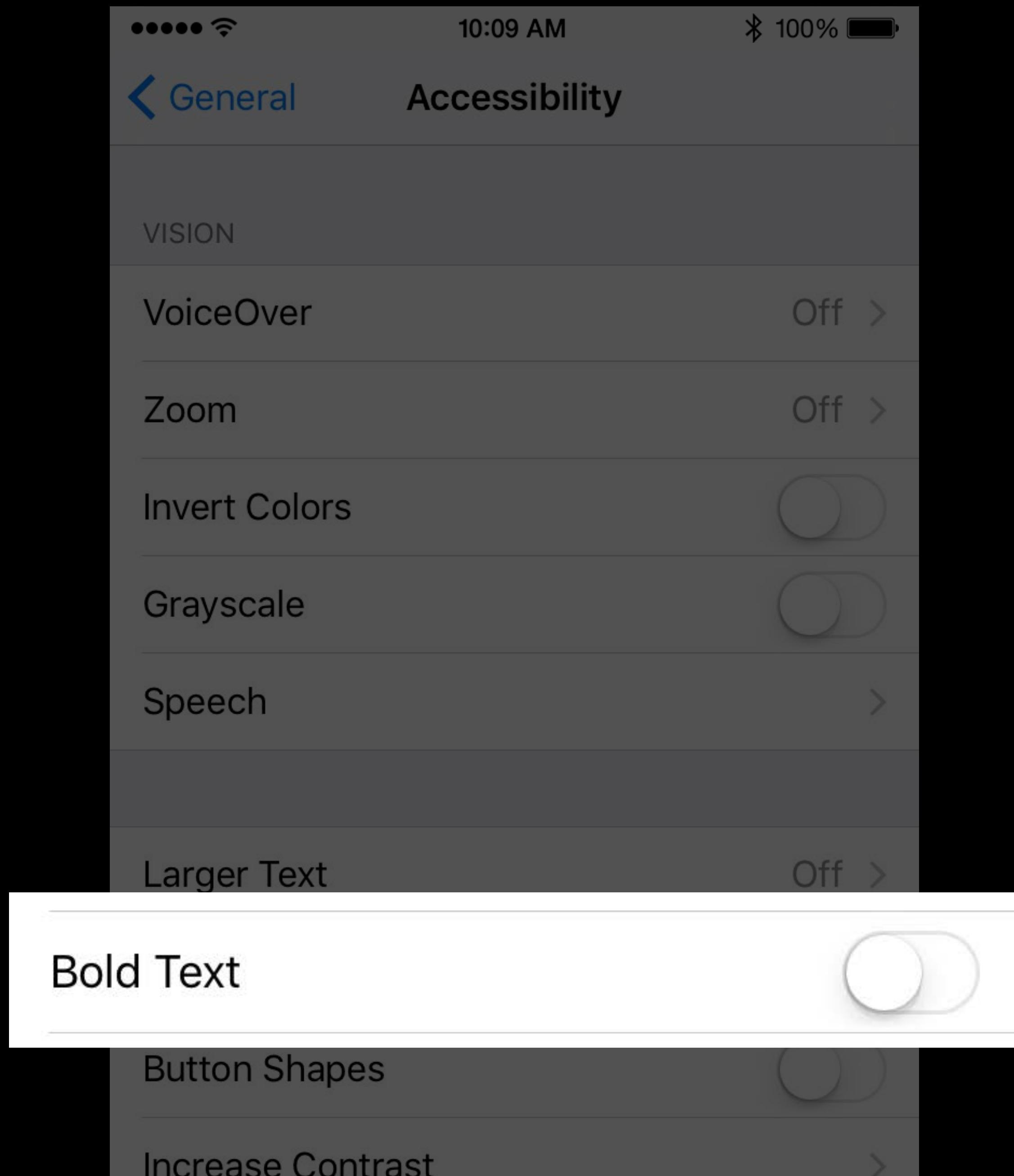
Settings > General > Accessibility > Bold Text



Settings > General > Accessibility > Bold Text



Settings > General > Accessibility > Bold Text



How to Use Weights

How to Use Weights

Relying on weights that are too bold will hit upper weight limit

How to Use Weights

Relying on weights that are too bold will hit upper weight limit

On the other hand, too-light text is unreadable for many users

Weights Summary

Weights Summary

New font weights are available in OS X 10.11 and iOS 9

Weights Summary

New font weights are available in OS X 10.11 and iOS 9

New APIs are available to make use of them

Weights Summary

New font weights are available in OS X 10.11 and iOS 9

New APIs are available to make use of them

Same guidelines about hierarchy, legibility, and taste apply to usage

Typographic Features

Features Make Fonts Active

Features Make Fonts Active

Features are behaviors embedded inside a font

Features Make Fonts Active

Features are behaviors embedded inside a font

Make complex scripts and languages possible

Features Make Fonts Active

Features are behaviors embedded inside a font

Make complex scripts and languages possible

Allow access to extended glyphs

Feature Example: Fractions

1/2

Feature Example: Fractions

1/2 1/2

Feature Example: Fractions

1/2 1/2

U+00BD VULGAR FRACTION ONE HALF

Feature Example: Fractions

2/9

Feature Example: Fractions

2/9 ?

Feature Example: Fractions

2/9 2

Feature Example: Fractions

2/9 2/

Feature Example: Fractions

2/9

Feature Example: Fractions

2/9 2/9

Feature Example: Fractions

2/9 2/9

U+2044 FRACTION SLASH

Feature Example: Fractions

2/9

Feature Example: Fractions



Feature Example: Fractions

65/324

65/324

Feature Example: Fractions



Feature Example: Fractions



Feature Example: Fractions



Feature Example: Fractions

$$65/324 \rightarrow 65\% / 324$$

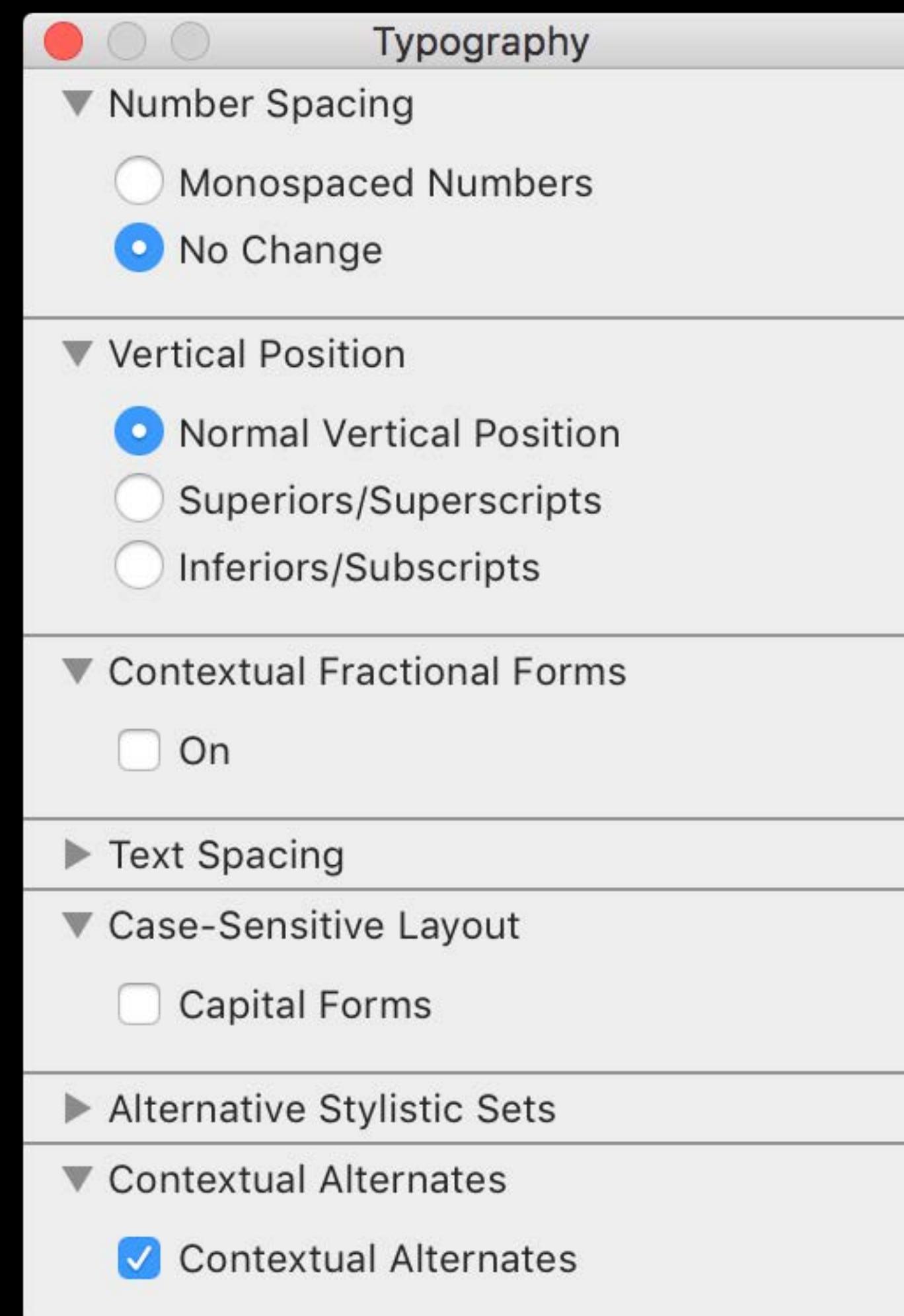
Feature Example: Fractions

$$65/324 \rightarrow 65\cancel{/324}$$

Feature Example: Fractions

$$65/324 \rightarrow 65\% / 324$$

Enabling Features: Typography Panel



Enabling Features: Code

```
let pointSize : CGFloat = 60.0
let systemFontDesc = UIFont.systemFontOfSize(pointSize,
                                             weight: UIFontWeightLight).fontDescriptor()
let fractionFontDesc = systemFontDesc.fontDescriptorByAddingAttributes(
    [
        UIFontDescriptorFeatureSettingsAttribute: [
            [
                UIFontFeatureTypeIdentifierKey: kFractionsType,
                UIFontFeatureSelectorIdentifierKey: kDiagonalFractionsSelector,
            ],
        ]
    ]
)

label.font = UIFont(descriptor: fractionFontDesc, size:pointSize)
```

Enabling Features: Code

```
let pointSize : CGFloat = 60.0
let systemFontDesc = UIFont.systemFontOfSize(pointSize,
                                             weight: UIFontWeightLight).fontDescriptor()
let fractionFontDesc = systemFontDesc.fontDescriptorByAddingAttributes(
    [
        UIFontDescriptorFeatureSettingsAttribute: [
            [
                UIFontFeatureTypeIdentifierKey: kFractionsType,
                UIFontFeatureSelectorIdentifierKey: kDiagonalFractionsSelector,
            ],
        ]
    ]
)

label.font = UIFont(descriptor: fractionFontDesc, size:pointSize)
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Enabling Features: Code

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let pointSize : CGFloat = 60.0
let systemFontDesc = UIFont.systemFontOfSize(pointSize,
                                             weight: UIFontWeightLight).fontDescriptor()
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    [
        UIFontDescriptorFeatureSettingsAttribute: [
            [
                UIFontFeatureTypeIdentifierKey: kFractionsType,
                UIFontFeatureSelectorIdentifierKey: kDiagonalFractionsSelector,
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        ]
    ]
)

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```

Enabling Features: Code

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let pointSize : CGFloat = 60.0
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                                             weight: UIFontWeightLight).fontDescriptor()
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    [
        UIFontDescriptorFeatureSettingsAttribute: [
            [
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                UIFontFeatureSelectorIdentifierKey: kDiagonalFractionsSelector,
            ],
        ]
    ]
)

label.font = UIFont(descriptor: fractionFontDesc, size:pointSize)
```

Enabling Features: Code

```
let pointSize : CGFloat = 60.0
let systemFontDesc = UIFont.systemFontOfSize(pointSize,
                                             weight: UIFontWeightLight).fontDescriptor()
let fractionFontDesc = systemFontDesc.fontDescriptorByAddingAttributes(
    [
        UIFontDescriptorFeatureSettingsAttribute: [
            [
                UIFontFeatureTypeIdentifierKey: kFractionsType,
                UIFontFeatureSelectorIdentifierKey: kDiagonalFractionsSelector,
            ],
        ],
    ]
)

label.font = UIFont(descriptor: fractionFontDesc, size:pointSize)
```

Enabling Features: Code

```
let pointSize : CGFloat = 60.0
let systemFontDesc = UIFont.systemFontOfSize(pointSize,
                                             weight: UIFontWeightLight).fontDescriptor()
let fractionFontDesc = systemFontDesc.fontDescriptorByAddingAttributes(
    [
        UIFontDescriptorFeatureSettingsAttribute: [
            [
                UIFontFeatureTypeIdentifierKey: kFractionsType,
                UIFontFeatureSelectorIdentifierKey: kDiagonalFractionsSelector,
            ],
        ]
    ]
)

label.font = UIFont(descriptor: fractionFontDesc, size:pointSize)
```

Feature Example: Superiors/Superscripts

e=mc²

Feature Example: Superiors/Superscripts

e=mc²

e=mc²

Feature Example: Superiors/Superscripts

e=mc²

e=mc²



Feature Example: Inferiors/Subscripts

C₃H₈

Feature Example: Inferiors/Subscripts

C3H8

C₃H₈

Feature Example: Inferiors/Subscripts

C3H8

C₃H₈



Feature Example: Uppercase Forms

A+3

Feature Example: Uppercase Forms

A+3 A+3

Feature Example: Uppercase Forms

A+3 A+3



Special Features

Special Feature: Vertically Centered Colon

9:41

Special Feature: Vertically Centered Colon

9:41

9:41

Special Feature: Vertically Centered Colon

9:41

9:41



Special Feature: Vertically Centered Colon

9:41

Friday, June 12

Special Feature: Vertically Centered Colon

9:41

Friday, June 12



Wed 9:41 AM



Special Feature: Vertically Centered Colon

9:41

Friday, June 12



Special Feature: Vertically Centered Colon

9:41

Friday, June 12



00:26.22
00:02.37

9:41

Sunset 7:10PM

9HRS 1MIN

Cupertino, CA



14:59



7:00



00:46

Special Feature: Vertically Centered Colon

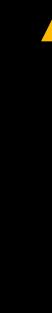
9:41

9:41

Special Feature: Vertically Centered Colon

9:41

9:41



Special Feature: Alternate Six and Nine

6 9

Special Feature: Alternate Six and Nine

6 9 6 9

Special Feature: Alternate Six and Nine



Special Feature: Alternate Six and Nine



Special Feature: Alternate Six and Nine

Special Feature: Alternate Six and Nine

Optional feature

Special Feature: Alternate Six and Nine

Optional feature

Available with code

Special Feature: Alternate Six and Nine

Optional feature

Available with code

`UIFontFeatureTypeIdentifierKey: kStylisticAlternativesType`

Special Feature: Alternate Six and Nine

Optional feature

Available with code

`UIFontFeatureTypeIdentifierKey: kStylisticAlternativesType`

`UIFontFeatureSelectorIdentifierKey: kStylisticAltOneOnSelector`

Bonus: Features and Optical Sizes

Bonus: Features and Optical Sizes

2⁶⁵/₃₂₄

Display

Bonus: Features and Optical Sizes

2⁶⁵/₃₂₄

Display

2⁶⁵/₃₂₄

Text

Features Summary

Features Summary

Features are behavior-embedded inside a font

Features Summary

Features are behavior-embedded inside a font

Some features are automatically turned on for System Font

Features Summary

Features are behavior-embedded inside a font

Some features are automatically turned on for System Font

Others require opt-in

Numbers

Number Spacing

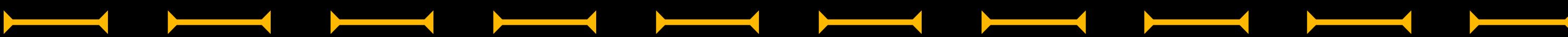
0123456789

Number Spacing

0123456789

Monospaced (Tabular) Numbers

0 1 2 3 4 5 6 7 8 9



Monospaced (Tabular) Numbers

235,667+

30,521+

1,273,313+

9,831+

127,053+

9,967,345+

Monospaced (Tabular) Numbers

235,667	+
30,521	+
1,273,313	+
9,831	+
127,053	+
9,967,345	+

Monospaced (Tabular) Numbers

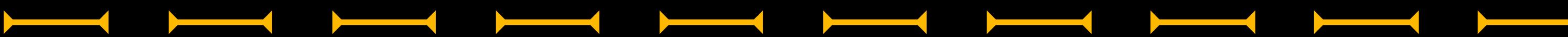
235,667+	2015/06/12 12:34
30,521+	2014/12/03 00:33
1,273,313+	2013/06/22 22:35
9,831+	2012/10/30 04:04
127,053+	2011/01/01 08:54
9,967,345+	2011/03/12 12:38
	2010/05/12 06:27

Monospaced (Tabular) Numbers

235,667	+	2015/06/12	12:34
30,521	+	2014/12/03	00:33
1,273,313	+	2013/06/22	22:35
9,831	+	2012/10/30	04:04
127,053	+	2011/01/01	08:54
9,967,345	+	2011/03/12	12:38
		2010/05/12	06:27

Monospaced (Tabular) Numbers

0 1 2 3 4 5 6 7 8 9



Proportional Numbers

0123456789



Monospaced for Animation

0.00MB of 10MB (13KB/sec)

0.00MB of 10MB (13KB/sec)

Monospaced for Animation

0.00MB of 10MB (13KB/sec)

0.00MB of 10MB (13KB/sec)

Monospaced for Animation

0.00MB of 10MB (13KB/sec)

0.00MB of 10MB (13KB/sec)

Proportionals for Static Labels

Friday,
June 12th

Proportionals for Static Labels

Friday,
June 12th

+1 (123) 300-4000

Proportionals for Static Labels

Friday,
June 12th

+1 (123) 300-4000

Inbox (3172 messages, 2 unread)

Proportionals for Static Labels

Friday,
June 12th

+1 (123) 300-4000

Inbox (3172 messages, 2 unread)

seanjohnson21@icloud.com

Proportionals for Static Labels

Friday,
June 12th

+1 (123) 300-4000

Inbox (3172 messages, 2 unread)

seanjohnson21@icloud.com

<http://www.apple.com/pr/library/2015/06/08Apple-Previews-iOS-9.html>

Proportionals for Static Labels

Friday,
June 12th

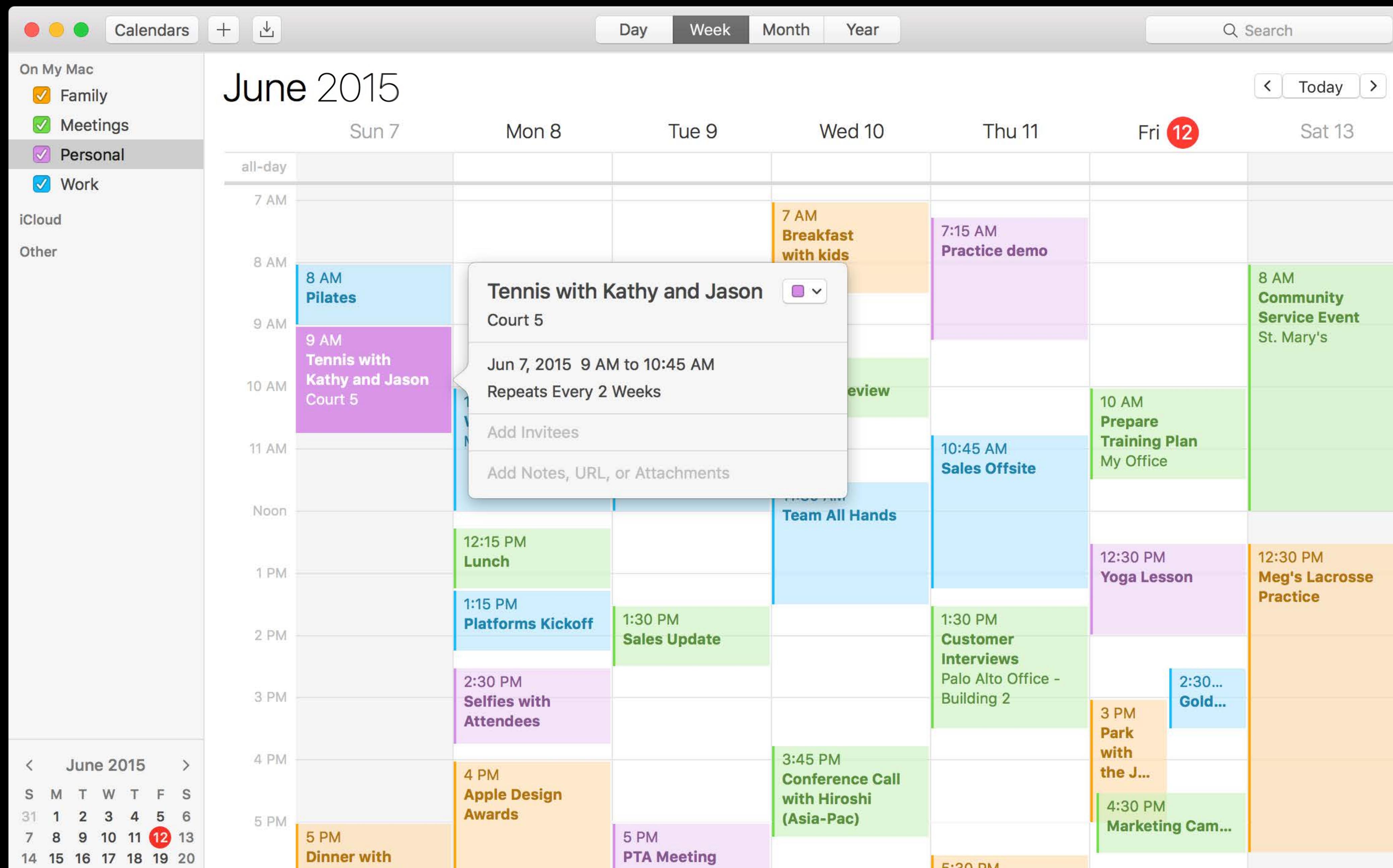
+1 (123) 300-4000

Inbox (3172 messages, 2 unread)

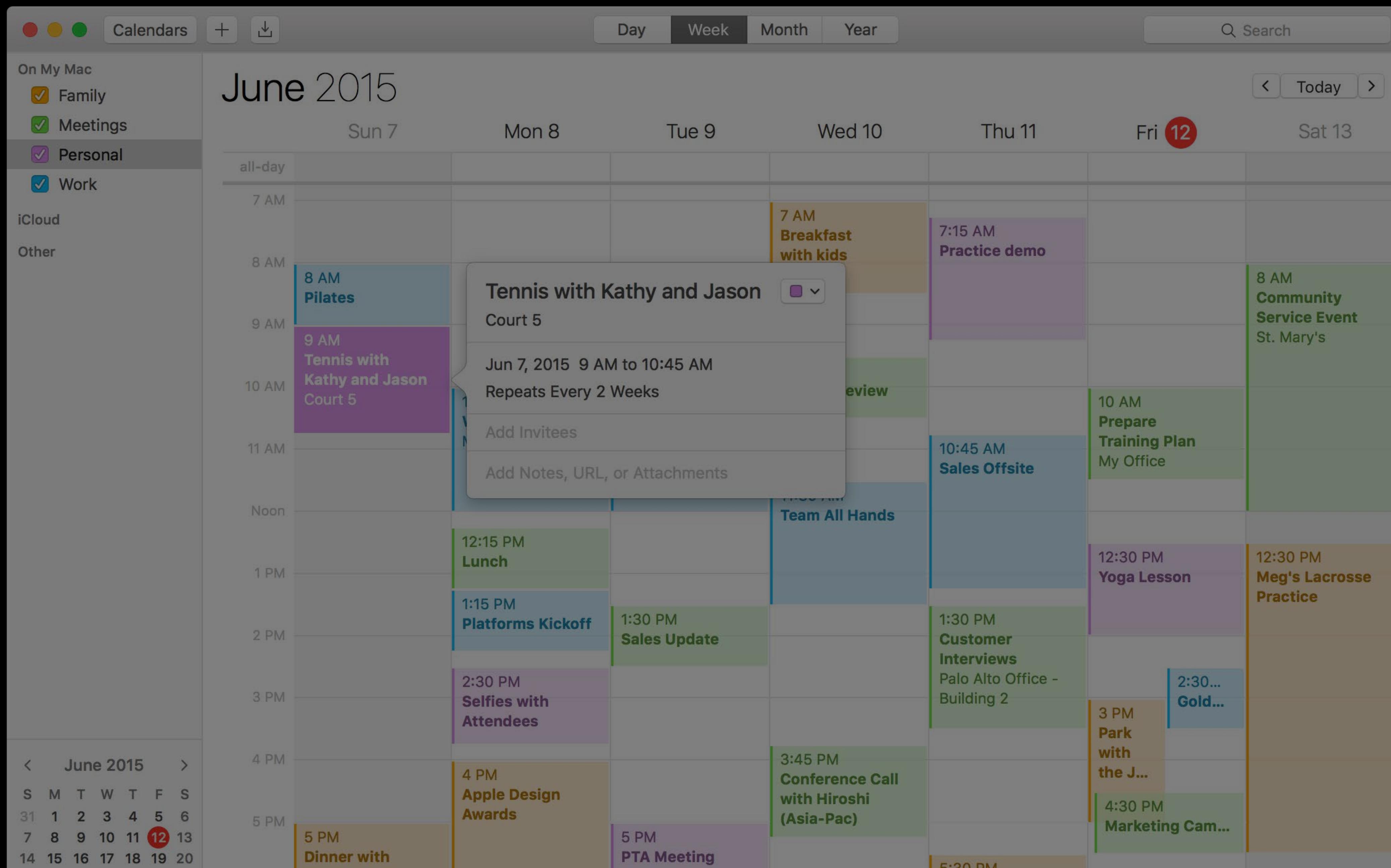
seanjohnson21@icloud.com

<http://www.apple.com/pr/library/2015/06/08Apple-Previews-iOS-9.html>

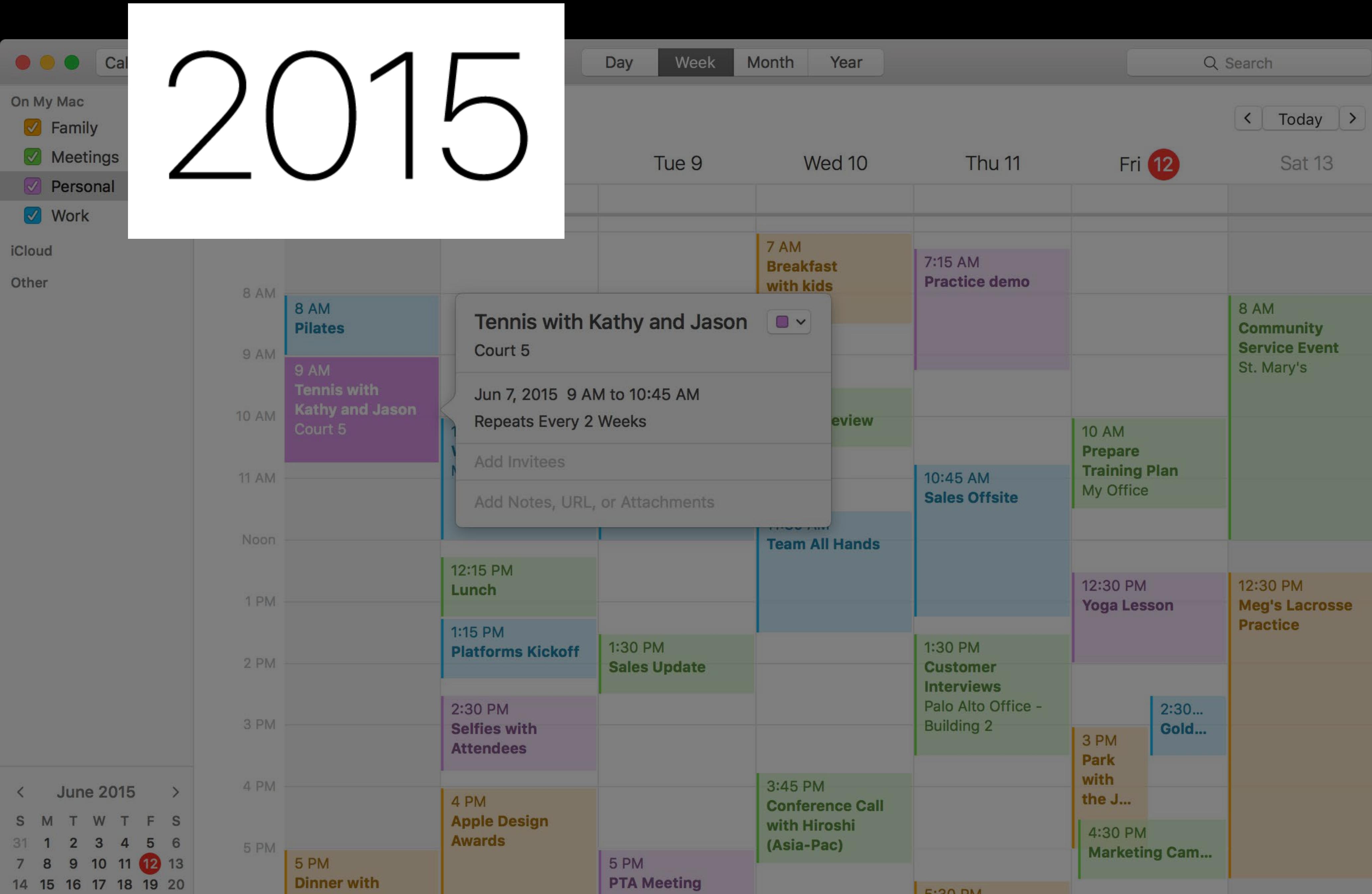
Proportionals for Static Labels



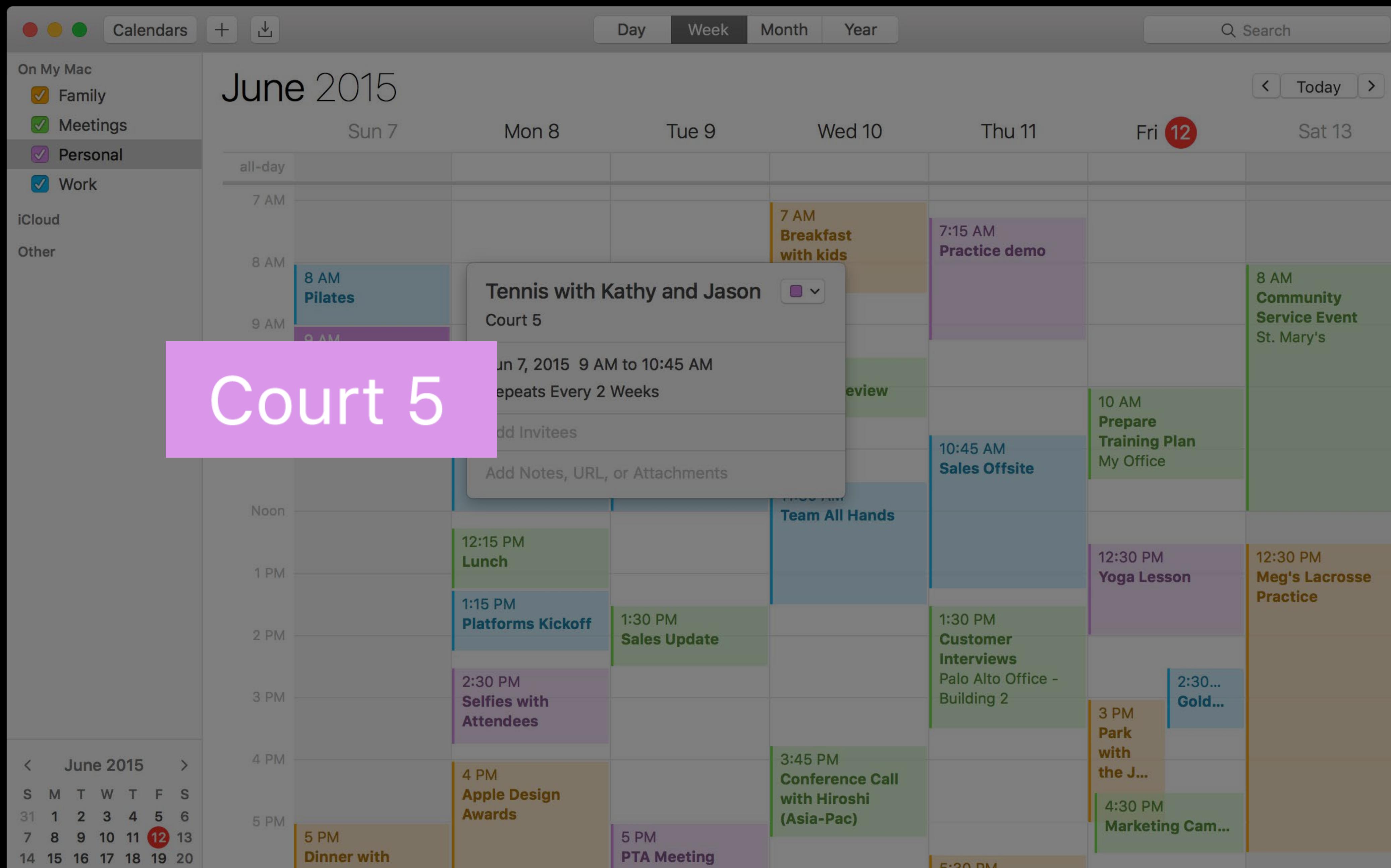
Proportionals for Static Labels



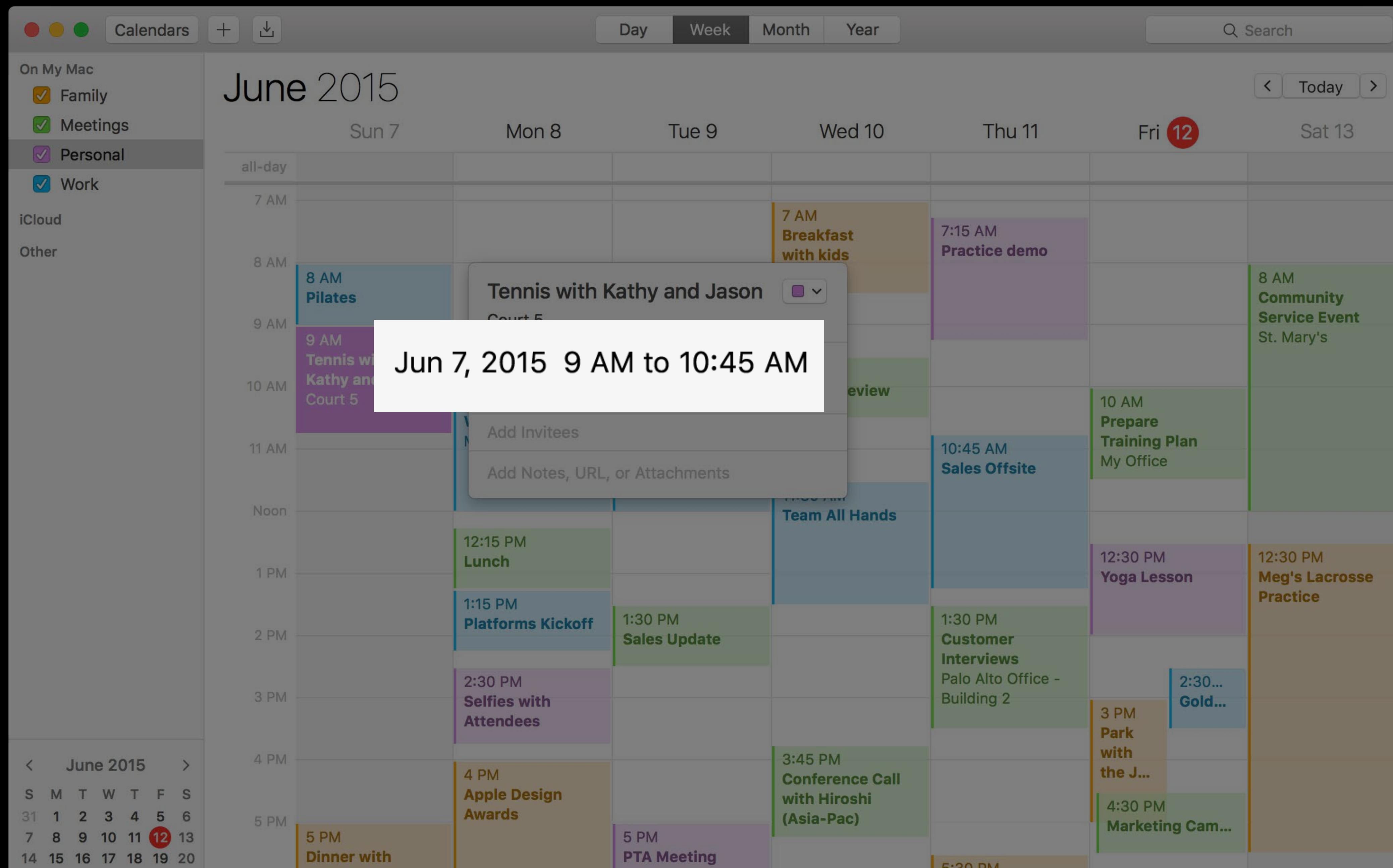
Proportionals for Static Labels



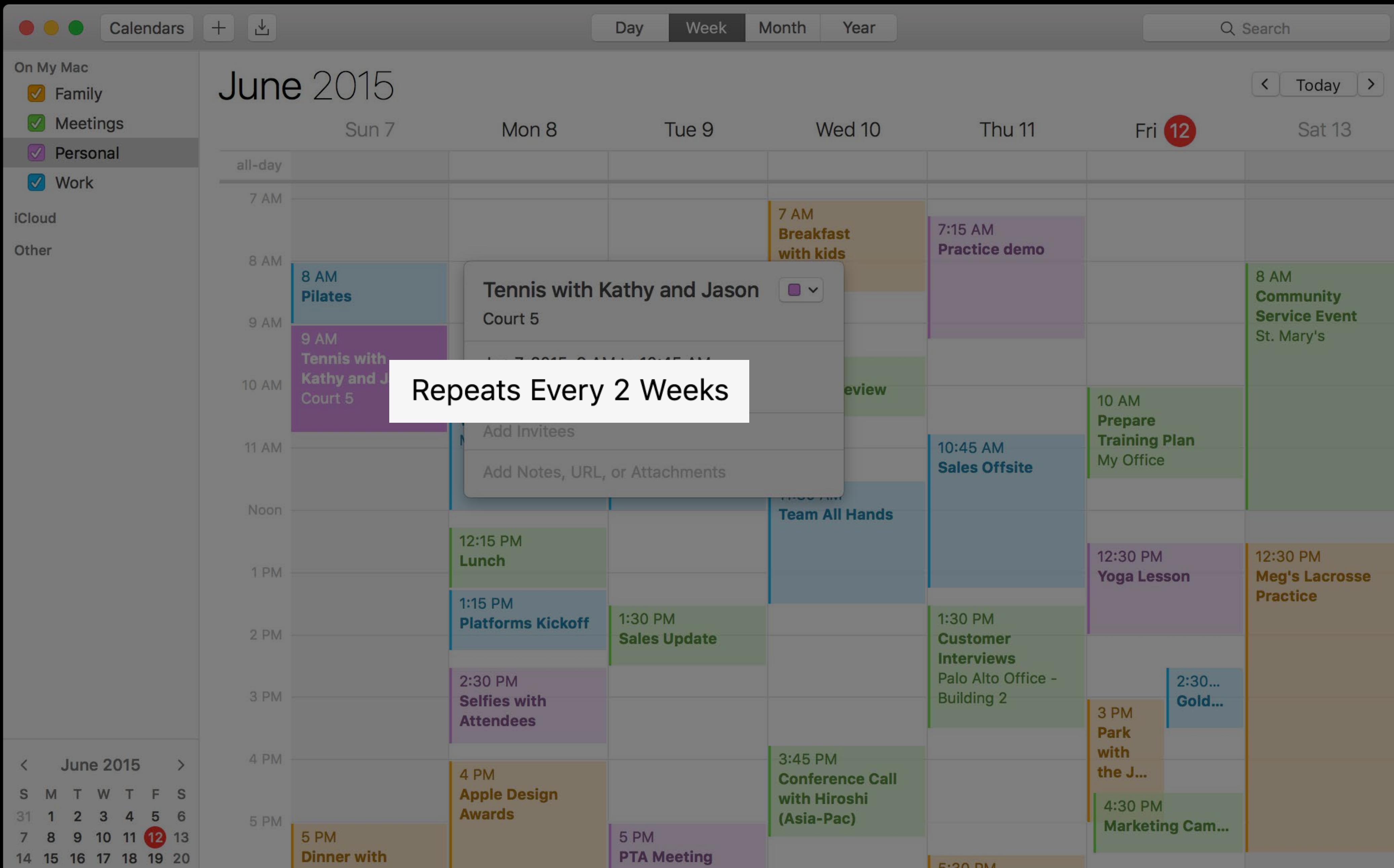
Proportionals for Static Labels



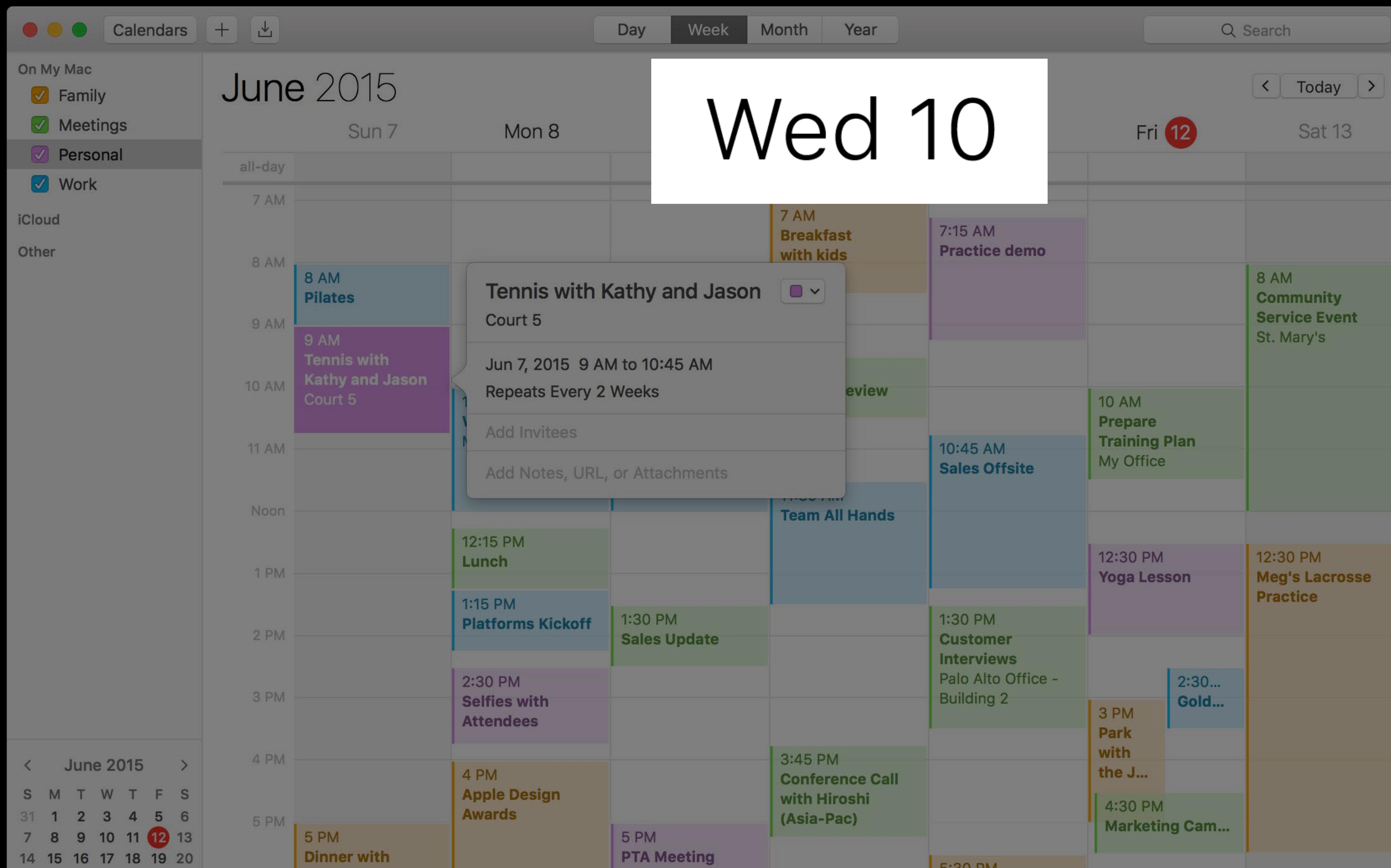
Proportionals for Static Labels



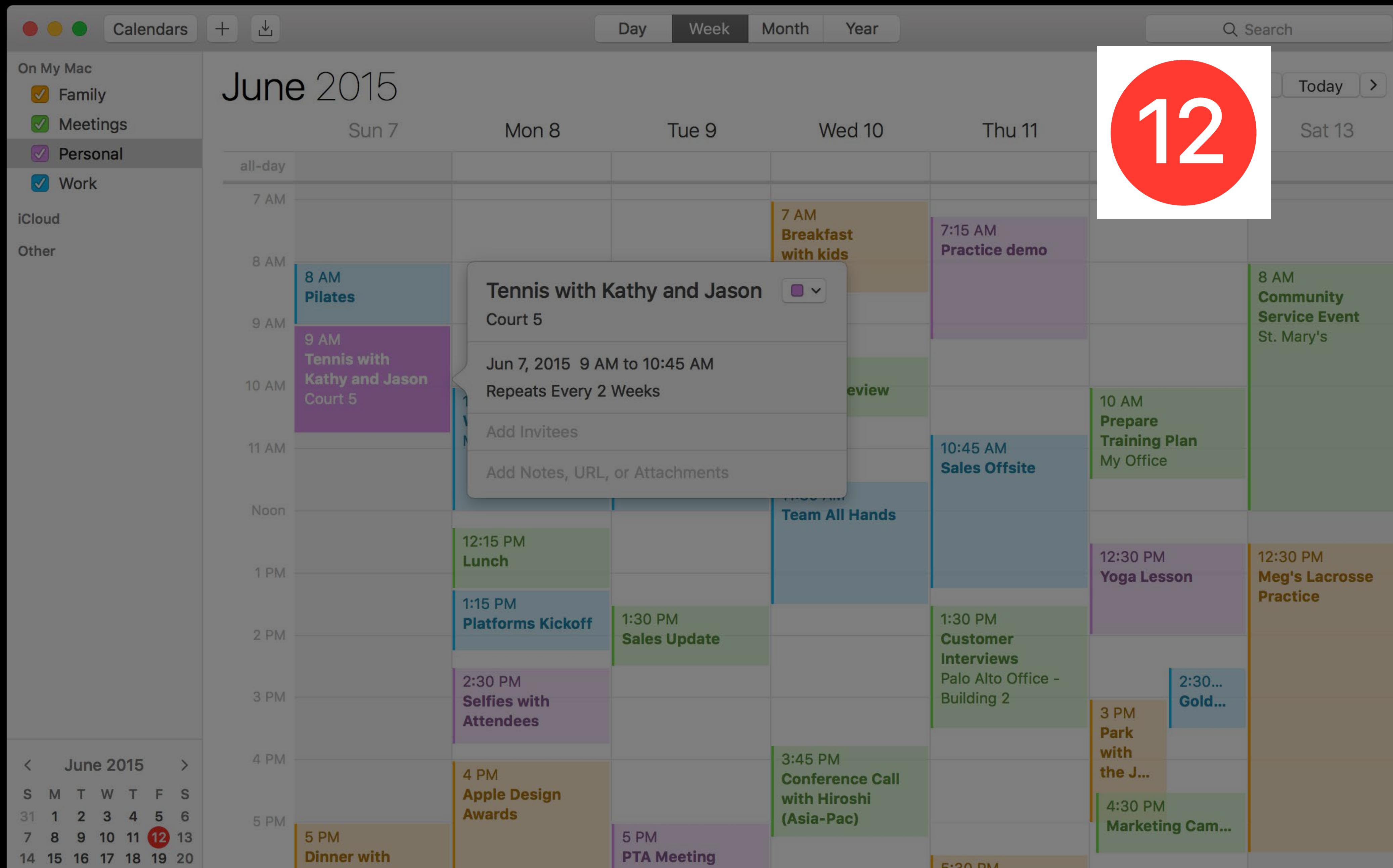
Proportionals for Static Labels



Proportionals for Static Labels



Proportionals for Static Labels



Proportional numbers
by default, opt into
monospaced

Numbers Summary

NEW

Numbers Summary

NEW

Numbers are now proportional by default

Numbers Summary

NEW

Numbers are now proportional by default

Applications not linked against OS X 10.11 and iOS 9.0 get monospaced numbers

Numbers Summary

NEW

Numbers are now proportional by default

Applications not linked against OS X 10.11 and iOS 9.0 get monospaced numbers

New shortcut API in AppKit

Numbers Summary

NEW

Numbers are now proportional by default

Applications not linked against OS X 10.11 and iOS 9.0 get monospaced numbers

New shortcut API in AppKit

`NSFont.monospacedDigitsSystemFontOfSize(mySize weight:)`

Font API Pitfalls

Don't Access Fonts with Private Names



```
let myFont = UIFont.fontWithName(".ApplePrivateFont" size:mySize)
```

Don't Reference Font File Names



...

```
/System/Library/Fonts/Apple Color Emoji.ttf  
/System/Library/Fonts/AppleSDGothicNeo-Bold.otf  
/System/Library/Fonts/Avenir.ttc  
/System/Library/Fonts/HiraKakuInterface-W2.otf  
/System/Library/Fonts/Monaco.ttf  
/System/Library/Fonts/Palatino.ttc  
/System/Library/Fonts/ZapfDingbats.ttf
```

...

Don't Access System Font by Name



```
let myFont = UIFont.systemFontOfSize(mySize)
```

...later in the code...

```
let myOtherFont = UIFont.fontWithName(myFont.familyName size:mySize)
```

Do Reuse Font Descriptors



```
let systemFont = UIFont.systemFontOfSize(mySize)
```

...later in the code...

Don't Draw System Font at a Different-Than-Nominal Point Size



15pt

hamburgefonstiv

Don't Draw System Font at a Different-Than-Nominal Point Size



15pt

hamburgefonstiv

15pt scaled up

hamburgefonst

Don't Draw System Font at a Different-Than-Nominal Point Size



15pt

hamburgefonstiv

15pt scaled up

hamburgefonst

120pt

hamburgefonstiv

Font API Pitfalls

Font API Pitfalls

Treat fonts as opaque objects

Font API Pitfalls

Treat fonts as opaque objects

Fonts with optical sizes break old assumptions

Font API Pitfalls

Treat fonts as opaque objects

Fonts with optical sizes break old assumptions

Relying on System APIs ensures correct behavior and rendering stability

Summary

Summary

Motivation

San Francisco

Optical Sizes

Tracking

Weight

Features

Numbers

Font API Pitfalls

More Information

Documentation

Apple Fonts and Text Page
developer.apple.com/fonts

Designing Great Apps

developer.apple.com/design

Technical Support

Apple Developer Forums
developer.apple.com/forums

Developer Technical Support

developer.apple.com/support/technical

General Inquiries

Curt Rothert, App Frameworks Evangelist
rothert@apple.com

Mike Stern, User Experience Evangelist

stern@apple.com

Related Session and Lab

Apple Watch Design Tips and Tricks

Presidio

Friday 3:30PM

Text and Fonts Lab

Frameworks Lab D

Friday 3:30PM

 **WWDC 15**