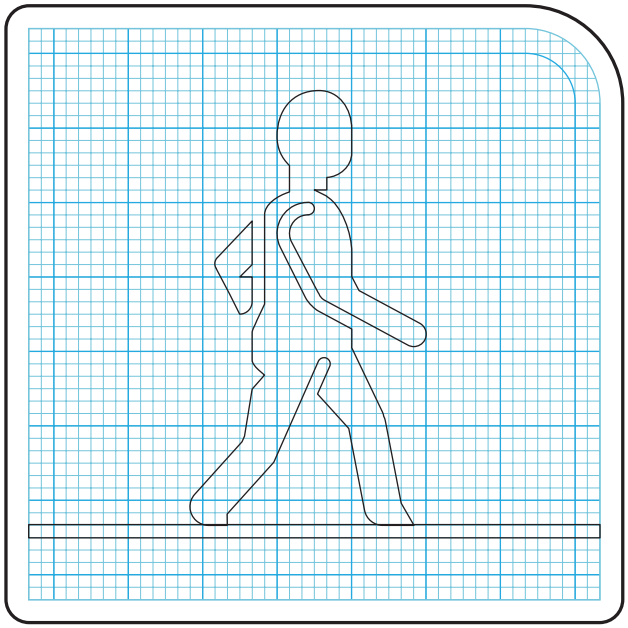

Pictogram 5.0

Evolving the Pictogram Language

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Fall 2007 Term Project

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1 Project Background

1.1 Context

The Special Needs Education Institute of Sweden (Specialpedagogiska Institutet; SIT) has an interest in developing a messaging tool for users with cognitive disabilities that uses a vocabulary of Pictograms† in place of written language. Their goal is to create a desktop web browser-accessible version of the tool and one for mobile devices. There is an existing first attempt at the web desktop version, but it falls short of being successful.

Similarly, there is an existing vocabulary of Pictograms – with several years of history – that also offers room for improvement. As that Pictogram Language transitions more seriously into screens (big and small), the need to rethink some of the guiding principles behind their design becomes more important. The result of such an exercise will have a positive effect on any new interface created.

This proposal is the result of ten weeks of research and ideation conducted between November 2007 and January 2008 at the Umeå Institute of Design.

† Pictograms are a succint form of visual communication. They are simplified pictorial expressions of objects, activities, relationships or more complex concepts that aim to be self-evident.

1.2 Aim of this Proposal

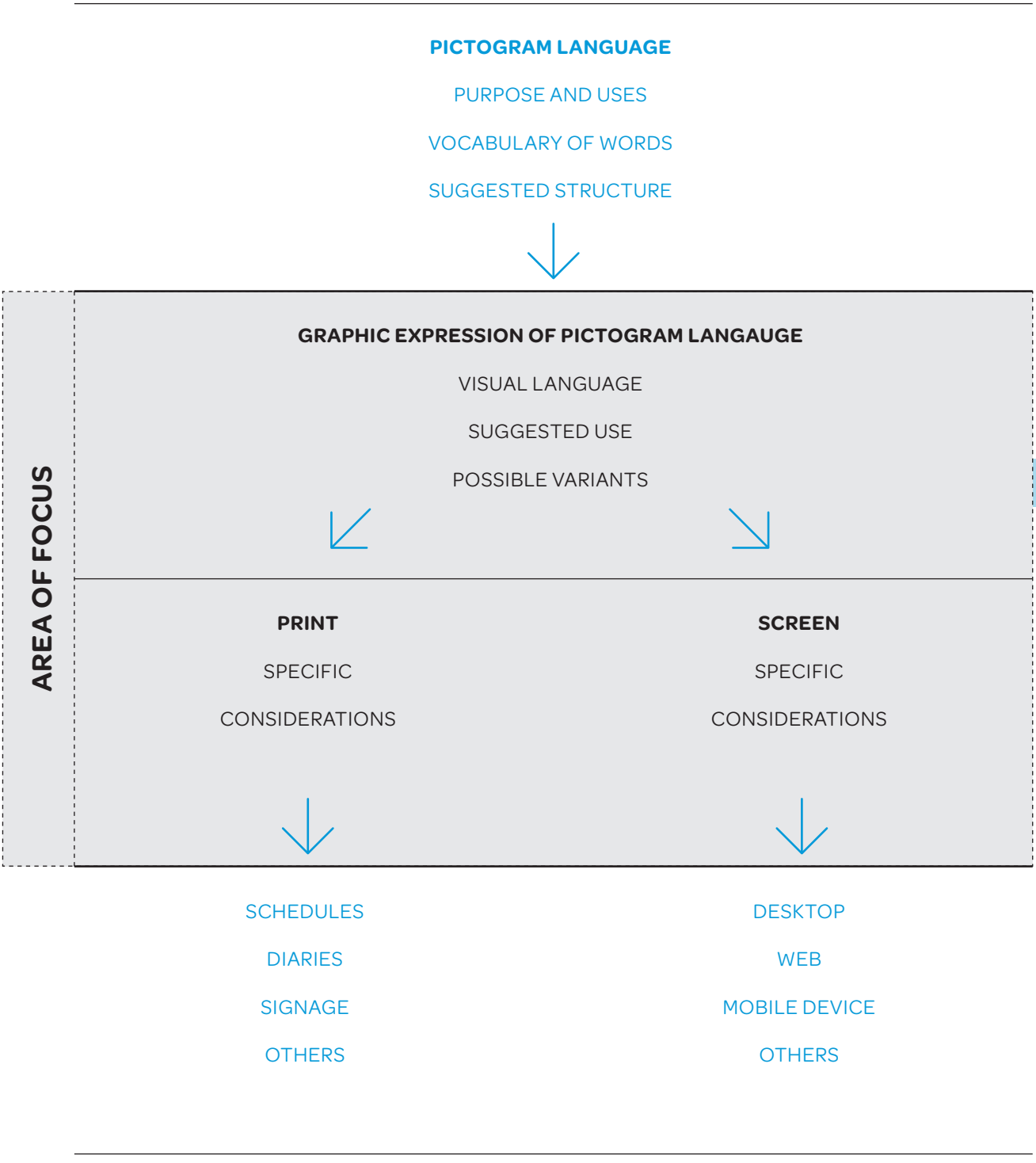
This document focuses on the building blocks of communication instead of the medium in which that communication takes place. It suggests a new outlook for the design of Pictograms – one that aims to add clarity to words and unity to the full language.

The current visual expression of the Pictogram Language is disparate and not optimally suited for screen-based applications, especially not those where space is limited. An audit of the Language reveals some of the general faults. By studying theses faults and suggesting strategies for improvement, it is possible to begin the process of building an updated system of knowledge that can open the door to greater harmony and flexibility. This knowledge will inform better interfaces and consequently greater clarity in communication.

At a higher level, this proposal aims to preserve the Pictogram Language and inject new life into it as other visual languages used by the cognitively disabled that lack some of the advantages of Pictograms gain popularity.

The diagram that follows shows how this proposal fits in with SIT's interests.

1.3 How this Proposal Fits In



1.4 Proposal Summary

This proposal suggests a comprehensive set of guidelines to be followed in the creation of new Pictograms and the conversion of old ones.

It touches on several details to be considered for individual Pictograms such as container shape, minimum line thickness, preferred angles and distribution of visual information among many. It also outlines strategies for how Pictograms should be presented together to form sentences or sequences of words.

To illustrate the new guidelines in use, ten existing Pictograms have been redesigned and are showcased at different sizes in their own section.

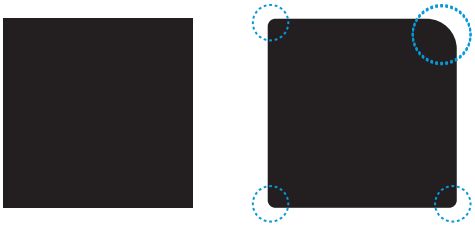
Ending this proposal are a collection of ideas on how variants to the Pictogram Language can provide opportunities for added meaning and a greater range of expression.

2

Basic Construction Guidelines

Pictograms should be designed one by one to achieve the best possible visual representation for a word or concept. To help guide the design process and to ensure an appropriate level of consistency across the full Pictogram Language, some common guidelines should be followed. If the guidelines are too limiting and get in the way of effective communication, they should be revisited and rewritten.

The suggestions presented here are a first attempt at establishing a core set of guidelines to inform the construction of Pictograms.



CURRENT CONTAINER

SUGGESTED CONTAINER WITH ROUNDED CORNERS

2.1 Container Shape and Size

Shape
The container is the element that identifies a single word†. It is not in itself the word, but a common identifier for all Pictograms in the language. The visual information that communicates that word is held within it.

There are three primary duties the container has to fulfill:

It has to signal where a word begins and ends

It has to contain clues that signal its belonging to the Pictogram Language

It should not steal attention away from the visual content that it carries within

In short, the container should broadcast itself as a single word in that language in a subtle but distinct way. When a Pictogram appears alongside other Pictograms in the Language, their relationship should be evident. In contrast, when a Pictogram appears alongside another pictogram or simplified image belonging to a different family of images, it should be clear that they are not directly related.

To achieve this distinction, pictogram containers must have a layer of *branding* that doesn't interfere with their primary function as vessels that deliver content.

The suggested approach improves on the existing square black box container in a few ways. By rounding all four corners of the box, a distinctive trait is introduced that makes the shape less generic than that of a strict square. More importantly, by rounding one of the corners with a bigger radius, the total shape becomes even more unique.

This added detail in one of the corners also makes the correct orientation of the Pictogram more obvious. The softer corner is always in the top-right corner of the container, and this should become a familiar clue to readers that is assertive without being distracting.

With this more unique shape, and the softer character achieved by rounding the corners, Pictograms gain a friendlier tone and enough personality to stand out from other similar graphic forms present in signage systems around us.

The more unique form with clear orientation also opens the door to the possibility of machine scanning of Pictograms. With a more unique shape, it isn't difficult to envision a future incarnation of the Language that could lend itself to this benefit. The application of such a function would allow more clear decoding of messages for alternate uses – assistance in learning of the Language and quick translation to written words and sounds, to name a couple.

† or a single unit in the Pictogram Language vocabulary, since there are a few multi-word Pictograms

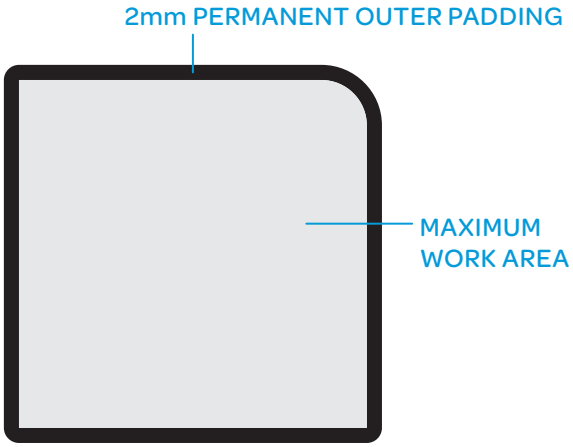
Size
The diverse types of uses of Pictograms make it difficult to impose strict rules on their size. They will be used in different and unpredictable ways, so Pictograms need to be designed so they work as well as is possible in all cases and so they degrade gracefully when used in extreme applications (very low or large scale, low resolution, involuntary distortion).

It is still important to establish a baseline size for their creation. The suggested size for designing Pictograms is a 5cm by 5cm square (50mm x 50mm). This is about the size that was observed in use in schedule boards during a visit to an activity home for cognitively disabled adults and as signage in various parts of that activity home.

It is recommended that the minimum print size be 25mm by 25mm, which is about the size observed in use on personal calendars and diaries carried by some in the target group. While designing at 50mm x 50mm the designer should always keep this smaller (25mm x 25mm) in mind.

For screen use, the recommended minimum size of a Pictogram is 50 pixels by 50 pixels (50px x 50px). Where possible, a larger size is desirable, and for use in mobile devices where the dot pitch (a measure of the physical size of each pixel) is very low – very small pixels – it is very important to test if 50 pixels is enough. It is hard to set hard rules for use in mobile screens because of the breadth of devices available on the market, and their fast pace of development.

2.1.1 Padding



The visual information inside of a container should never extend to the border of the container. The perimeter of the container must therefore be padded.

If the visuals were to extend beyond this padded border, the limits of a Pictogram could become unclear and their meaning altered.

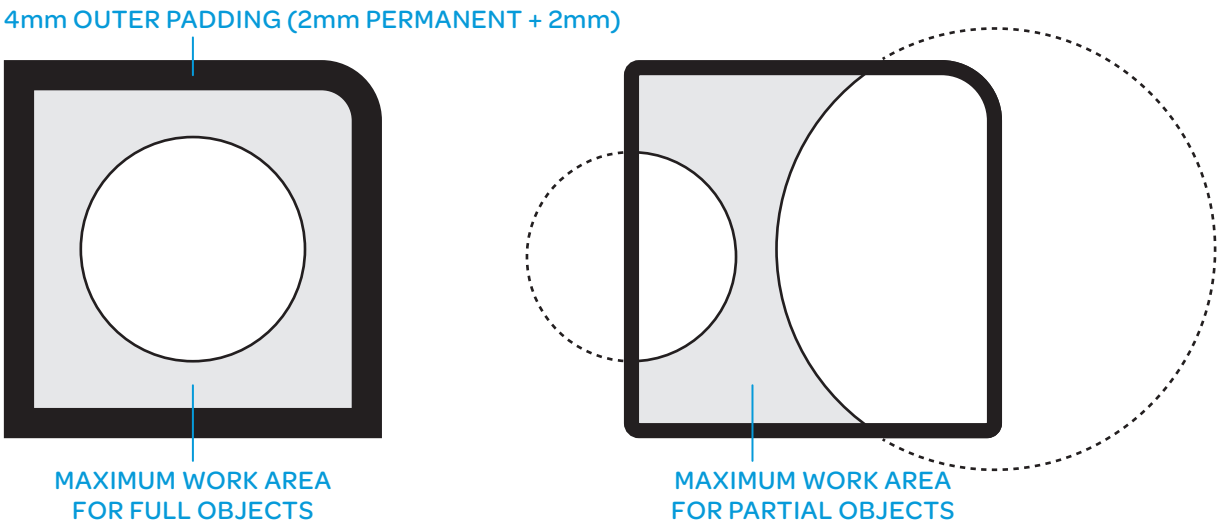
There are two high-level types of visual depictions of words:

Full Objects
The meaning of a Pictogram is self-contained within an image (composed of one or several elements) that can be entirely held within the container.

Partial Objects
The correct meaning of a Pictogram relies on context, and the image chosen is a partial representation of a larger object or scene. For instance, a hand is a part of a human's body, so if a close-up of a hand is shown, it should be connected to an arm, but that arm or the rest of the body need not be shown in full.

The safe work area and padding values for both types are shown below.

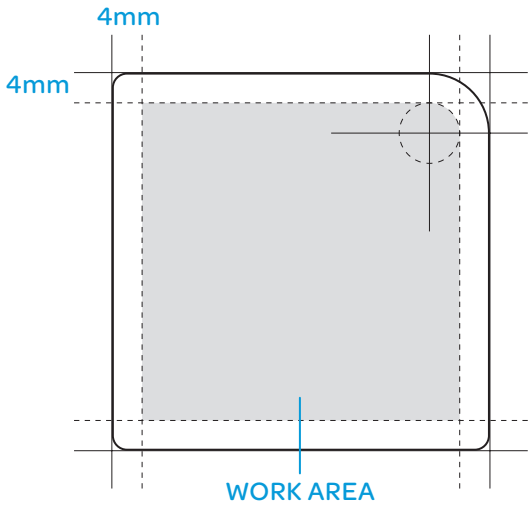
2.1.2 Safe Work Area



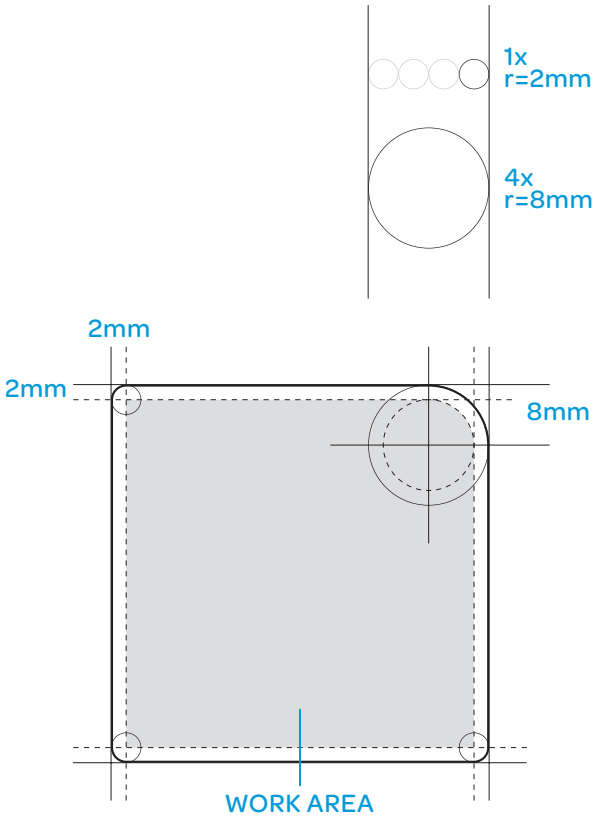
Full Objects
The outer padding border should be 4mm in thickness (considering a 50mm x 50mm square). No visual information should intrude into this area.

Partial Objects
The outer padding border should be 2mm in thickness. No visual information should intrude into this area. The thinner padding allows the image to come close to the edge of the Pictogram to suggest the continuation of an object or complex scene.

2.1.3 Schematic Views



The light gray area shows the available work area for Full Objects.

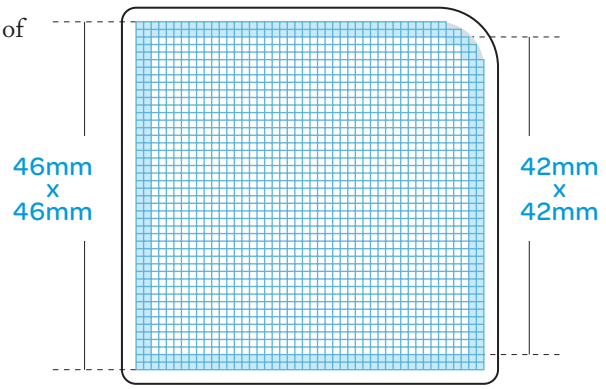


The light gray area shows the available work area for Partial Objects. Also shown is the size relationship of the rounded corners. The radius of the top-right corner is four times the size of the radius of the other corners.

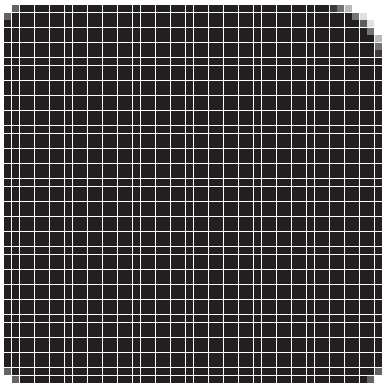
Considering the padding values for both types of Pictograms, the safe work area size are:

For Full Objects
42mm x 42mm

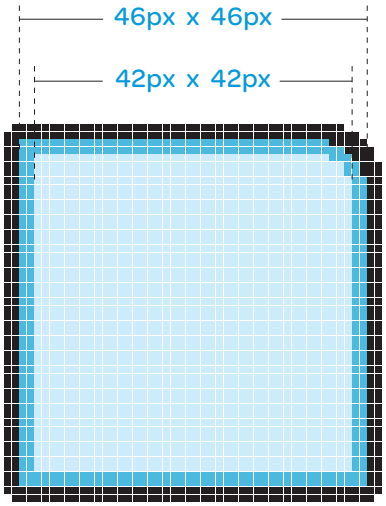
For Partial Objects
46mm x 46mm



2.1.4 Considerations for Screen Use



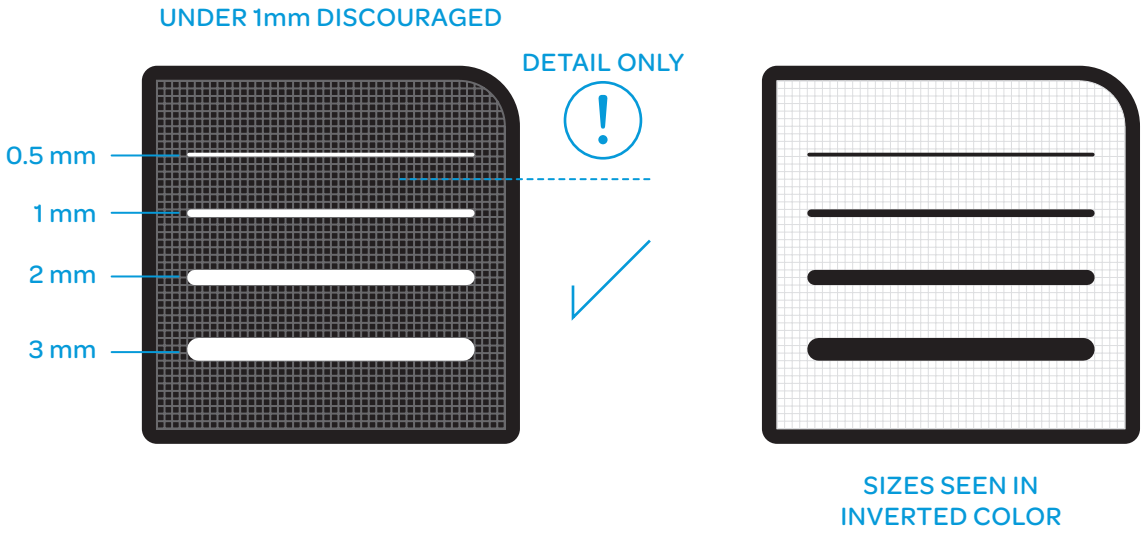
Considering a minimum screen size of 50px x 50px, it should be possible to contain the smallest detail of a Pictogram in 1 pixel. This need should be kept present when designing the *master* version and when converting a version for print into one for screen use.



Minimum sizes for screen use are:

For Full Objects:
42px x 42px

For Partial Objects:
46px x 46px

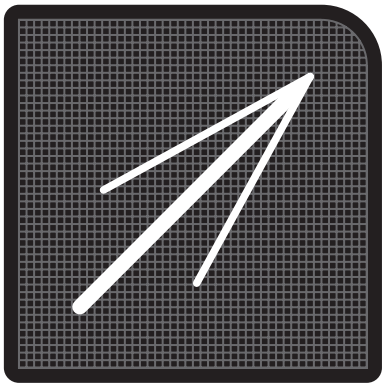


2.2 Line Thickness

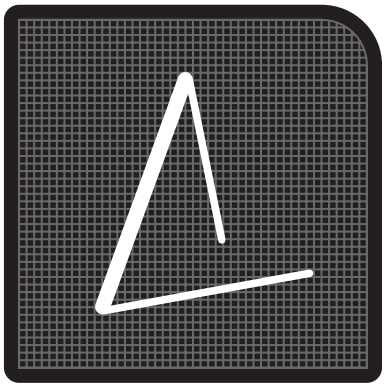
Lines of different thicknesses will be needed for different Pictograms and often for a single Pictogram. To ensure proper rendering on screen, the minimum thickness should be 1mm, which translates to 1px for a 50px x 50x pictogram. It is possible, however, to use thinner lines for small, non-critical detail. Those thinner lines will still render on screen, but as lighter values of black.

If the translation of print to screen involves some editing (instead of a straight batch conversion), it is possible to have more latitude in line thickness when creating the original. The conversion process would aim to balance the need for details with the available resolution of a given device.

It is important to notice that when reversed (a technique discussed in section 4 of this proposal), line thickness will appear optically different. On screen, white light will add weight to a white line making it look thicker than a black one of the same thickness. On paper, black ink will bleed outward and add weight to a black line making it look thicker than a white one of the same thickness.



30°, 45°, 60°
ANGLES PREFERRED



OTHER ANGLES POSSIBLE,
AWKWARD ANGLES
DISCOURAGED

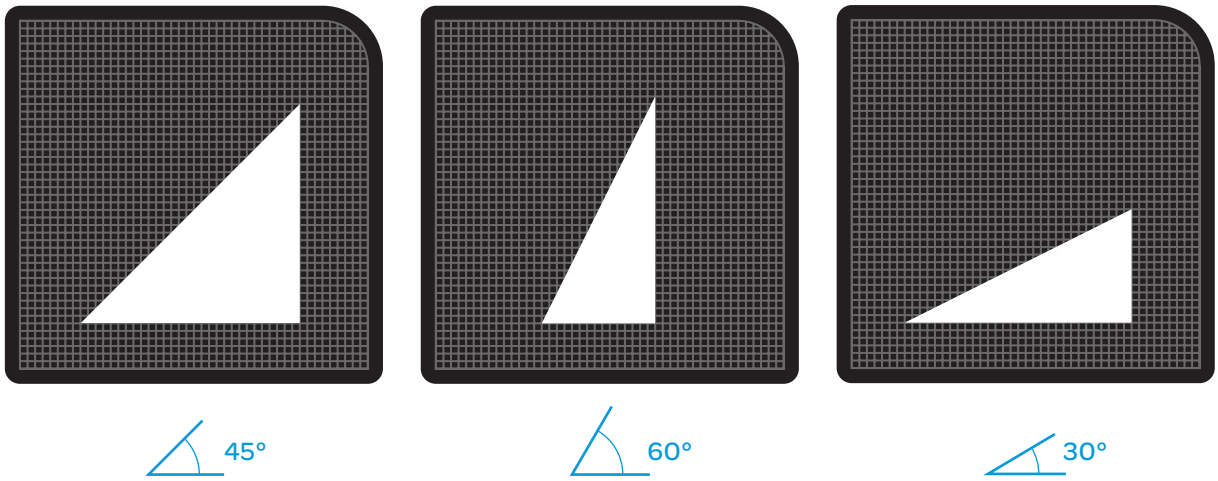
2.3 Safe Angles

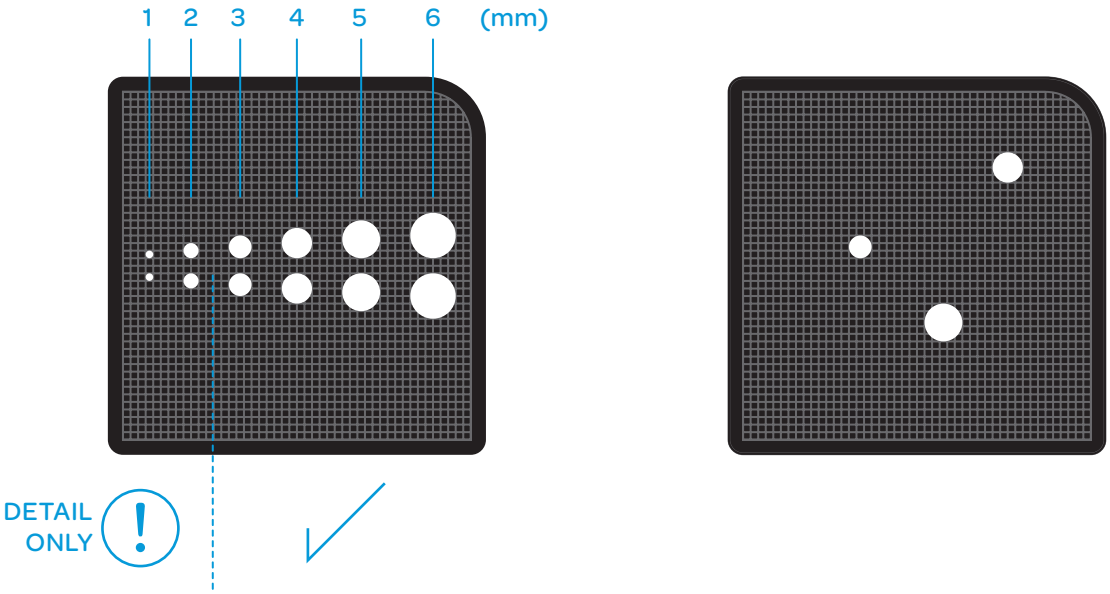
Lines and shapes at a variety angles will be necessary to depict the full vocabulary of words in the Pictogram Language. Where possible, it is suggested to restrict the angles of those lines to the increments shown (30˚, 45˚ and 60˚). These angles will render more cleanly on screen displays and are significant increments that can be easily told apart.

It is also a good idea to limit the variety of angles within a single Pictogram. When possible, parallel lines of the same angle are preferable within the same Pictogram to a more arbitrary choice of lines.

Angle values other than those suggested are possible and will often be necessary. As a general rule, very steep or gentle angles are discouraged. When the usefulness of 30˚, 45˚ or 60˚ has been exhausted in the design of a Pictogram, the other 15˚ increments – 15˚ and 75˚ – can be added before opening the range up completely to even smaller increments.

2.3.1 Safe Angles in Detail

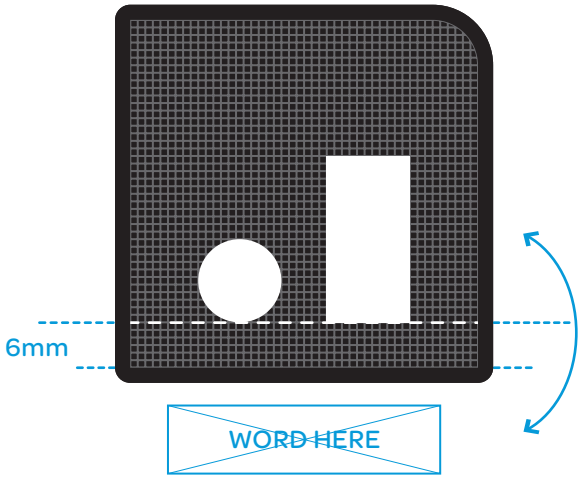




2.4 Dots and Circles

The smallest dot size suggested is 1mm in diameter, but for more important objects 3mm is a better target. Small dots will render even on screen, but may become very small and hard to detect. A 1mm circle will become a 1px square on screen, and a 2mm dot will begin to simulate a circle more closely on screen, but not until 3mm/3px does a circle become an obvious representation of a circle on screen.

It is up to the designer to understand the needs of each Pictogram. Decisions on dot size will be influenced by such details as image complexity, distribution of objects in an image, and relationship between objects of different sizes in a scene.

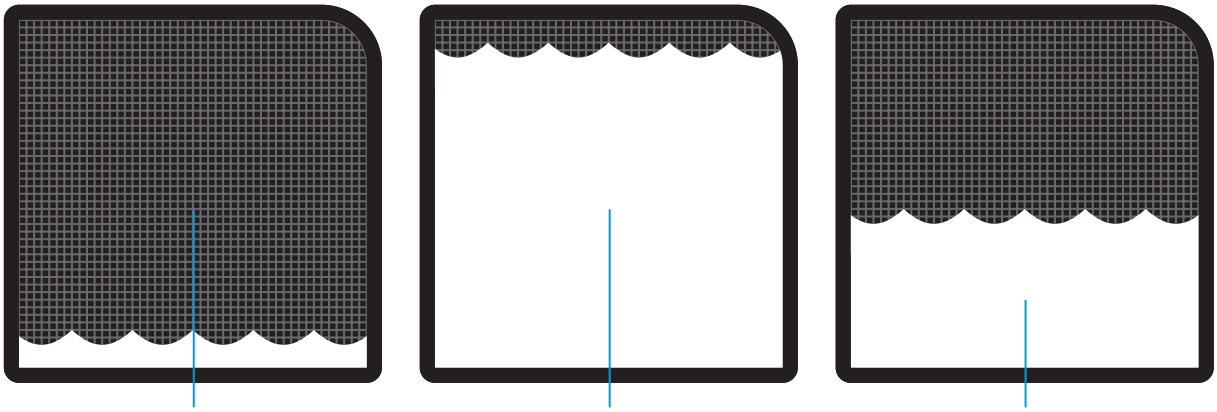


2.5 Invisible Baseline

The image used in a Pictogram will often show objects detached from their environment. This is useful since it places focus on that object alone instead of surrounding ones. To associate that object in a subtle and unobtrusive way it is possible to place objects on an invisible baseline that suggests a surface for those objects to rest on.

When several Pictograms share this baseline, the resulting uniform arrangement of objects in the sentence or sequence makes for a more fluid read.

The full work area will often be needed to show additional detail or increase the size of an image, so the invisible baseline should be ignored when it gets in the way of a more clear Pictogram.

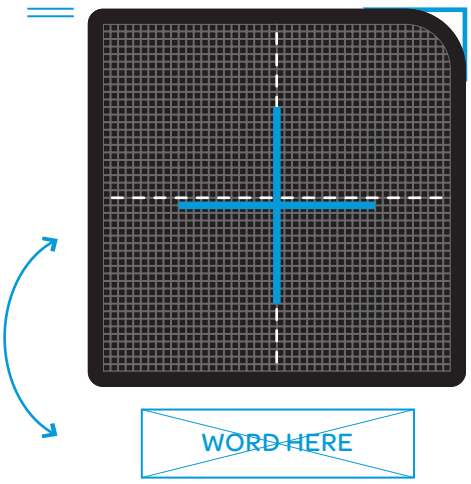


2.6 Positive/Negative Space

To work as a language, the balance of positive and negative space used in a Pictogram should aim for harmony within itself and in relation to other Pictograms. Some variety is also desirable to create shifts in color density, but a loose consistency is of benefit.

To maintain equilibrium, the designer needs to make judgements depending on many factors, so there aren't strict rules to follow. A fair goal could be to aim for roughly 40% to 60% fill (positive space, or white as shown in the examples above).

It is also important to make exceptions for words that rely on empty or very full images toaccurately depict their meaning.

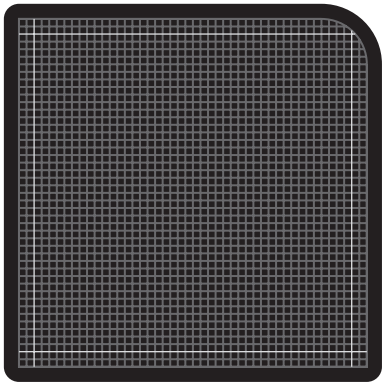


2.7 Alignment

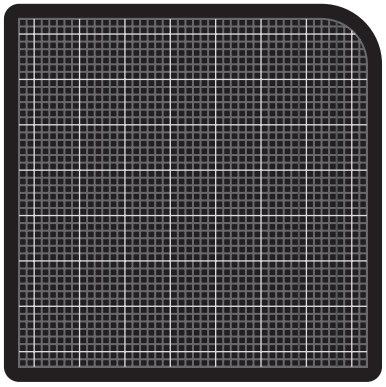
When possible, the Pictogram image should be centered on the vertical axis. As will be show later in this proposal, a Pictogram container will sometimes appear with its respective written word beneath, centered. A centered image over a centered word creates a more obvious relationship between the two,

A centered image also affirms the Pictogram as a single, concise word instead of a less intentional visual artifact of indefinite purpose.

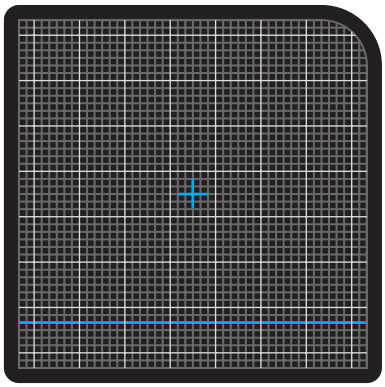
There will be several exceptions where a word will benefit from a different type of alignment. As always, the potential for a more clear meaning should override directions that may be appropriate most of the time but are incompatible in others. It should be obvious to the designer when to follow or when to ignore this suggestion.



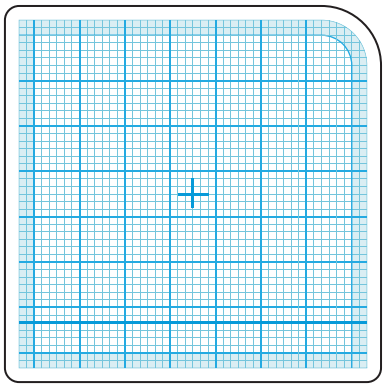
1 mm INCREMENTS WITH EMPHASIS ON INNER MARGIN (FOR FULL OBJECTS)



1 mm INCREMENTS WITH 7 SUBDIVISIONS



1 mm INCREMENTS WITH SUBDIVISIONS, INVISIBLE BASELINE AND CENTER POINT



INVERTED WITH FULL DETAILS

2.8 Creating a Useful Grid

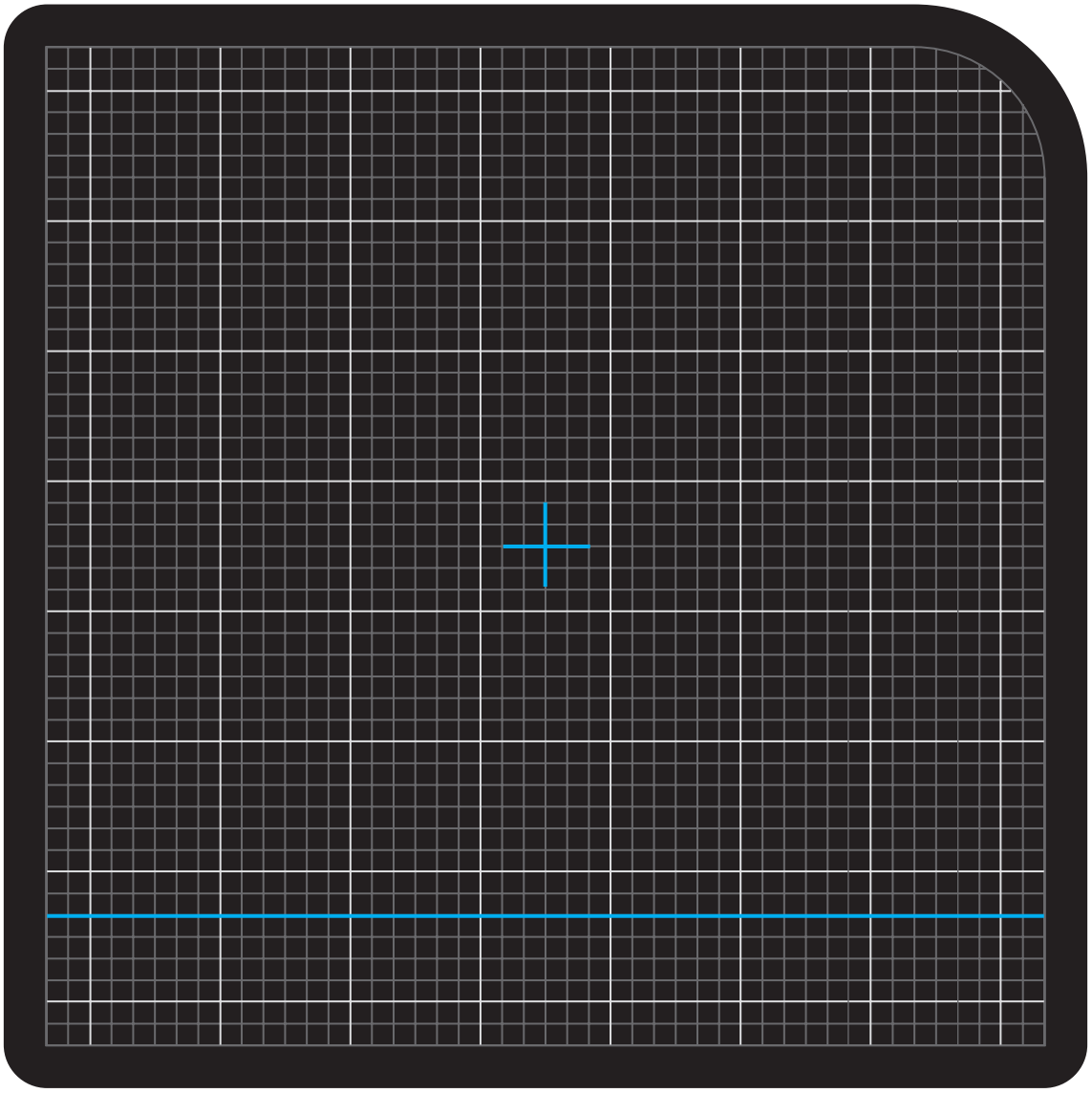
As an aid to the designer, a grid can be a useful reminder of the requirements to consider when creating a new pictogram. The grid shown splits the container into 1mm increments (a reminder of the minimum line thickness), and into larger increments of 6mm each. The 6mm increments form seven main vertical and horizontal *bands*, with a clear center in the fourth band on both axes. Beyond the seven bands on each edge are an extra 2mm that can be used for Partial Object depictions (discussed in Section 2.1.1 of this proposal).

The grid shown also includes an anchor in the middle that shows the dead center of the Pictogram and a line showing the Invisible Baseline (Section 2.5).

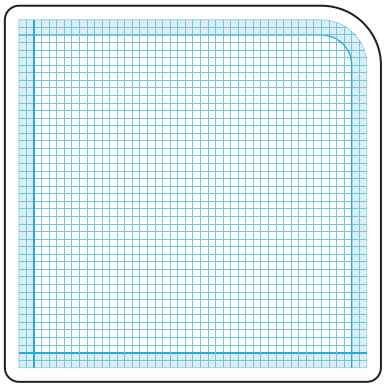
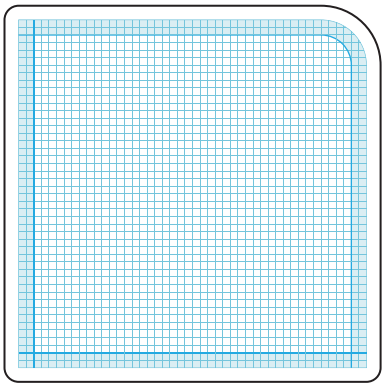
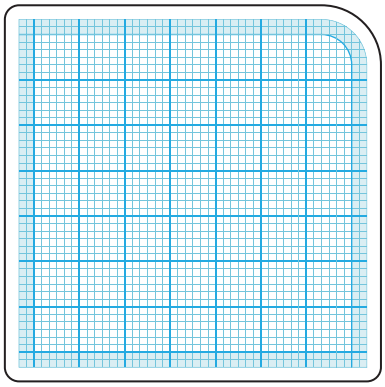
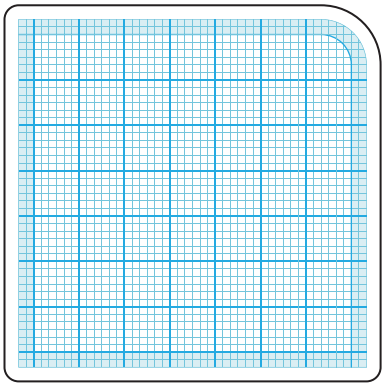
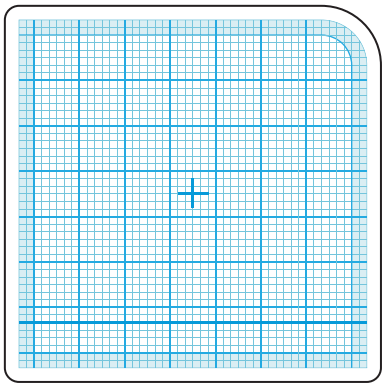
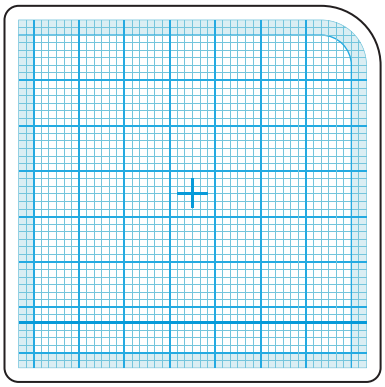
Depending on how many aids are needed, different version of the grid with more or less detail can be used.

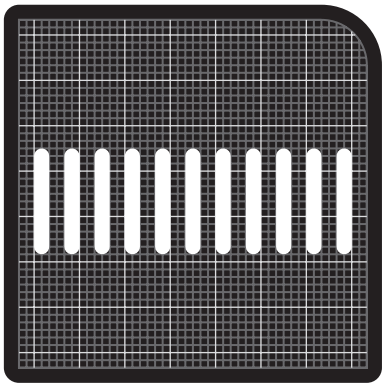
Additionally, the process of conversion of an existing Pictogram to a new one that follows these guidelines could be started by overlaying a grid on top of existing artwork to analyze what areas need editing.

2.8.1 Magnified View of Grid (3x)

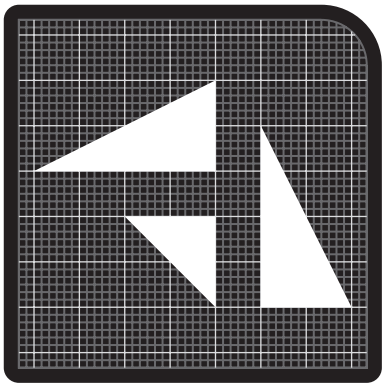


2.8.2 Blanks for Practice

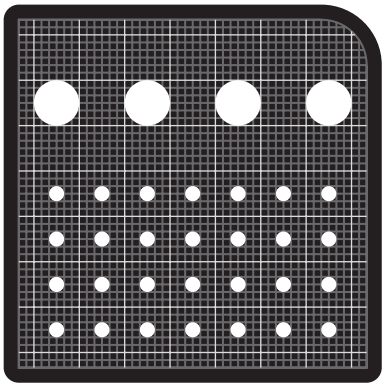









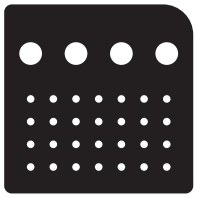
2mm THICK LINES



30°, 45°, 60°



6mm and 2 mm CIRCLES

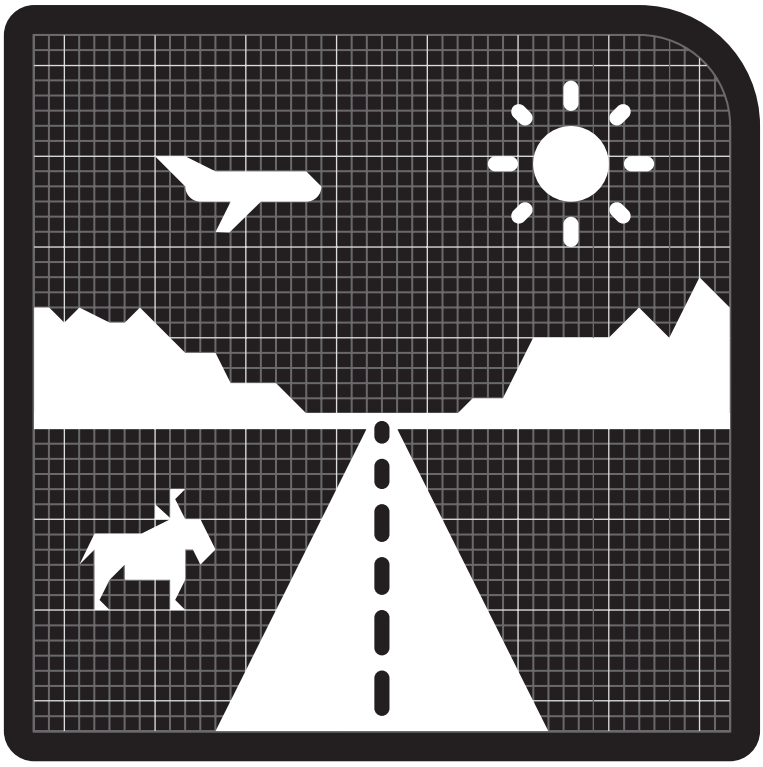


2.9 Tests with Simple Shapes

To validate some of the suggestions discussed thus far, objects can be drawn over the Pictogram grid to understand what some of the limits are. By drawing simple lines, dots, and shapes we see that the freedom of visual expression is more restrictive than that of the current library of Pictograms.

While this will present challenges, the level of consistency will improve and the results should perform better when scaled down for use on small screens. The Pictograms that need greater visual detail to be successful will require some of the suggestions to be reinterpreted, and that is a positive outcome that will better the Pictogram construction process and will inform an improved version of this document. A look at shapes that are less primitive follows next.

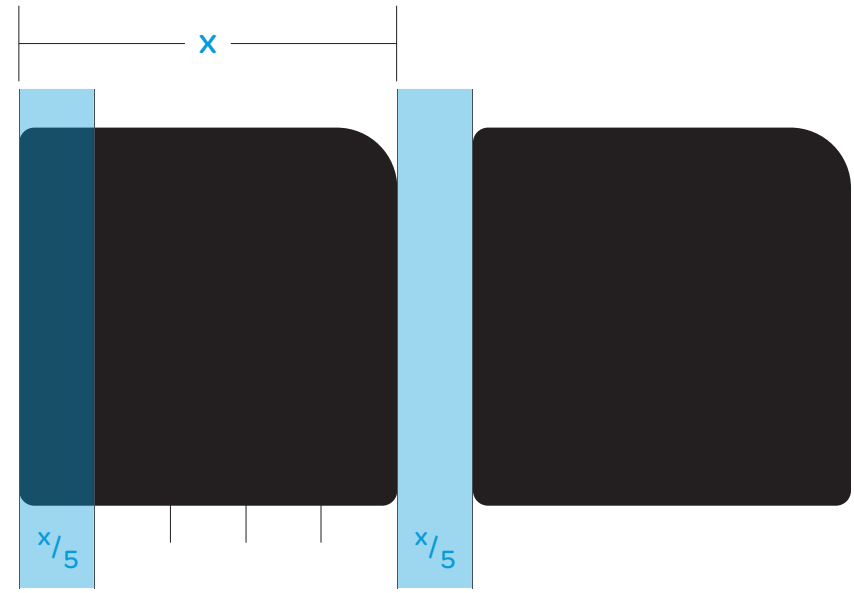
2.9.1 A Step beyond Simple Shapes

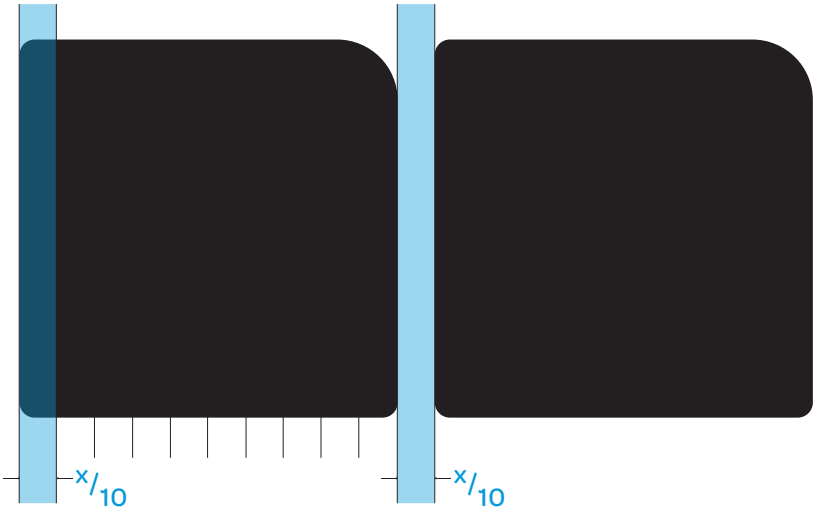


Following most of the guidelines presented we can still create more detailed and complex scenes as shown in this example. The scene shown is not a depiction of a word, but rather a test creating an arbitrary image with several components.

Parts of the image that begin to clash with some suggestions can be seen, but are of minimal consequence in the full image. All elements work in unison to create a picture and compensate for detail that might be missed at small scale (on paper or on screen).

The very small detail that may be missed at small scale can be seen in the feet of the animal near the road and in the tail of both the animal and the aeroplane. In both, other parts of those objects are strong enough to communicate the full meaning (see bottom image).



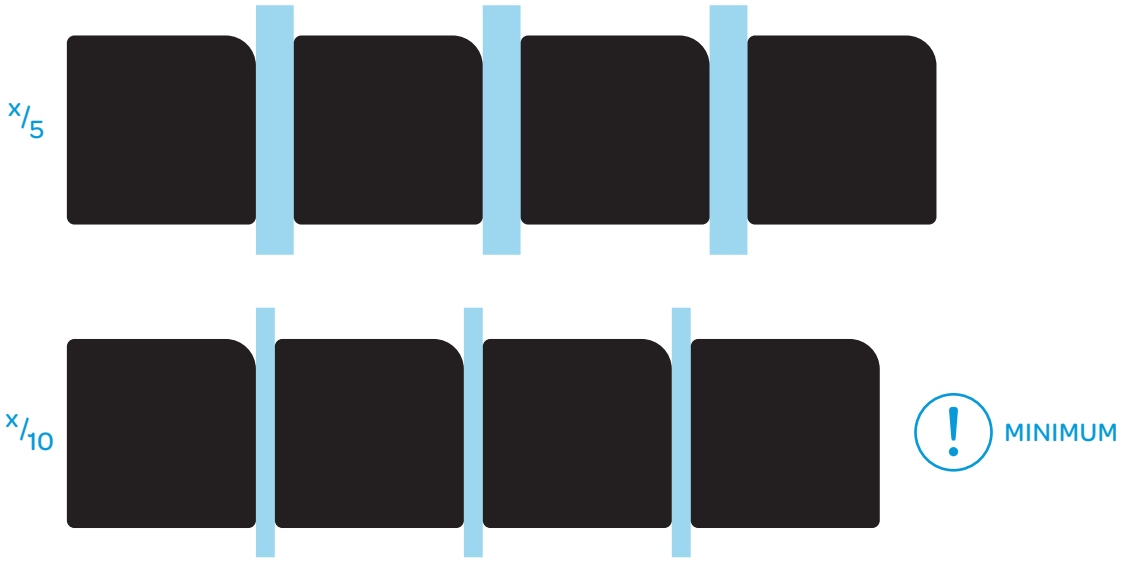


2.10 Spacing Rules

Just as words in a phrase use spaces between them, Pictograms forming a sentence should too. If the space between each word is too tight, images start to run into each other as the boundaries between them become less obvious. If the spaces are too long, the sequence of words becomes too loose and the connection between them less direct.

The suggested range of gaps between Pictograms is one tenth to one fifth of the width of a Pictogram. The exact distance will depend on the application.

2.10.1 Spacing Rules in Use



The looser composition (x/5) is better suited for big screens and short messages. The bottom composition (x/10) may be better suited for small screens and multiline messages.

2.11 Variable Pictogram Width

The current Pictogram Language is composed of over 1400 Pictograms all housed in a black square container of exactly the same size for each word. At present, when the image chosen for a Pictogram is of an object that is very wide, it has to be squeezed to fit within a square. Similarly inadequate, when the image is of a narrow object or scene, the image appears with wide margins around it.

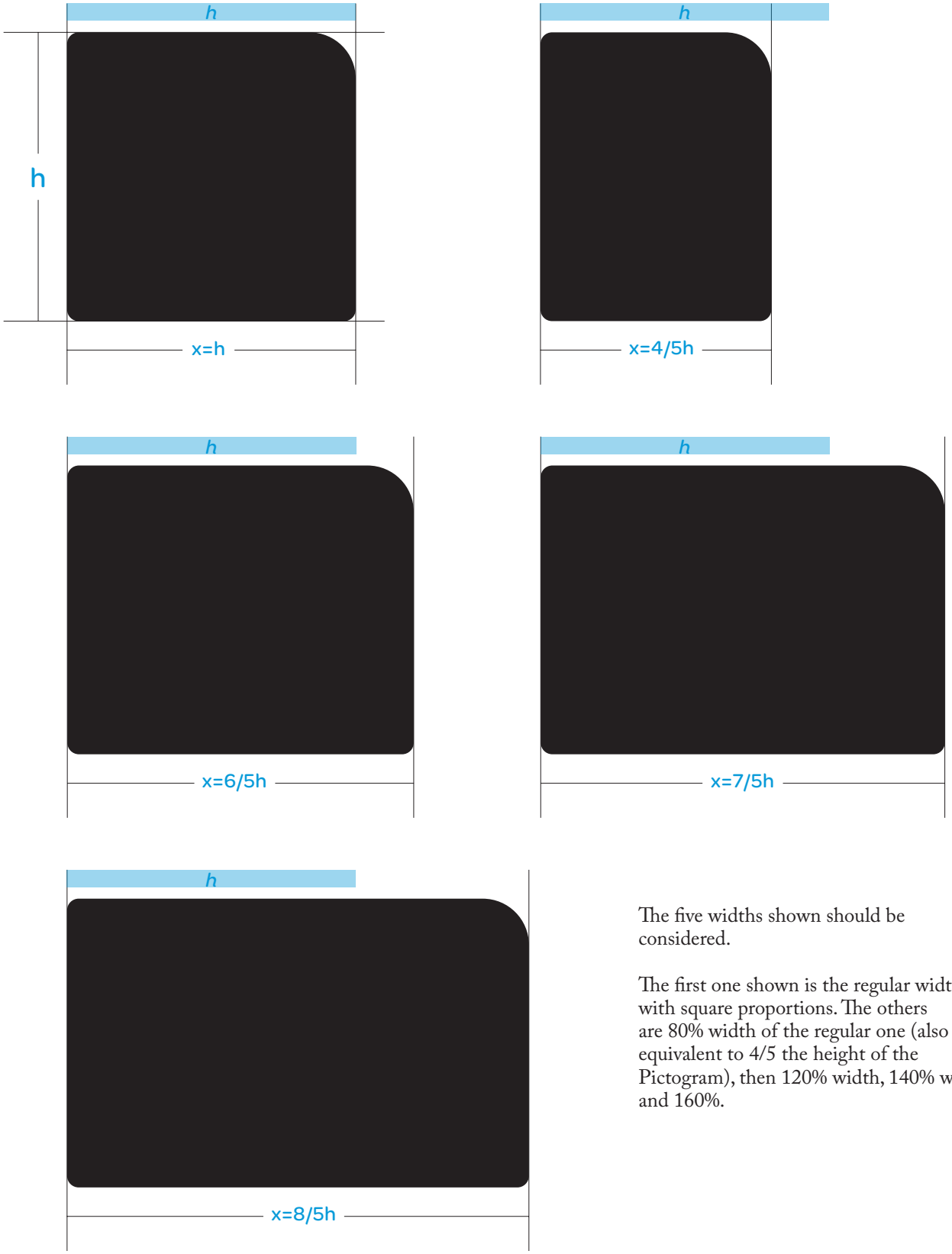
Allowing diversity in the width of a Pictogram creates the opportunity to be more efficient in the use of space, minimizes some compromises in image rendering based on scale, and lends a more uniform rhythm to a message.

There are additional consequences of possible benefit to having multiple widths. One benefit is that a message composed of Pictograms becomes less rigid in structure. For a long message this may ease the demand placed on the reader. Instead of making sense of a neatly arranged matrix of images with what could be interpreted as somewhat ambiguous order, the message becomes more like a paragraph of written text.

Another benefit is adding an additional differentiator to words. Not only does the visual inside the container communicate meaning, but the shape can also trigger the reader's memory to act as another mnemonic property of a word. This could happen for individual words, but also for word pairs. Common word pairs ("I go," for instance) together form an image that can be decoded at once with less effort.

An open-width approach could easily get out of hand. Therefore, limiting the number of widths is necessary. Five widths should be enough, where the difference between the most narrow Pictogram and the widest is not so wide that they loose familiarity between each other.

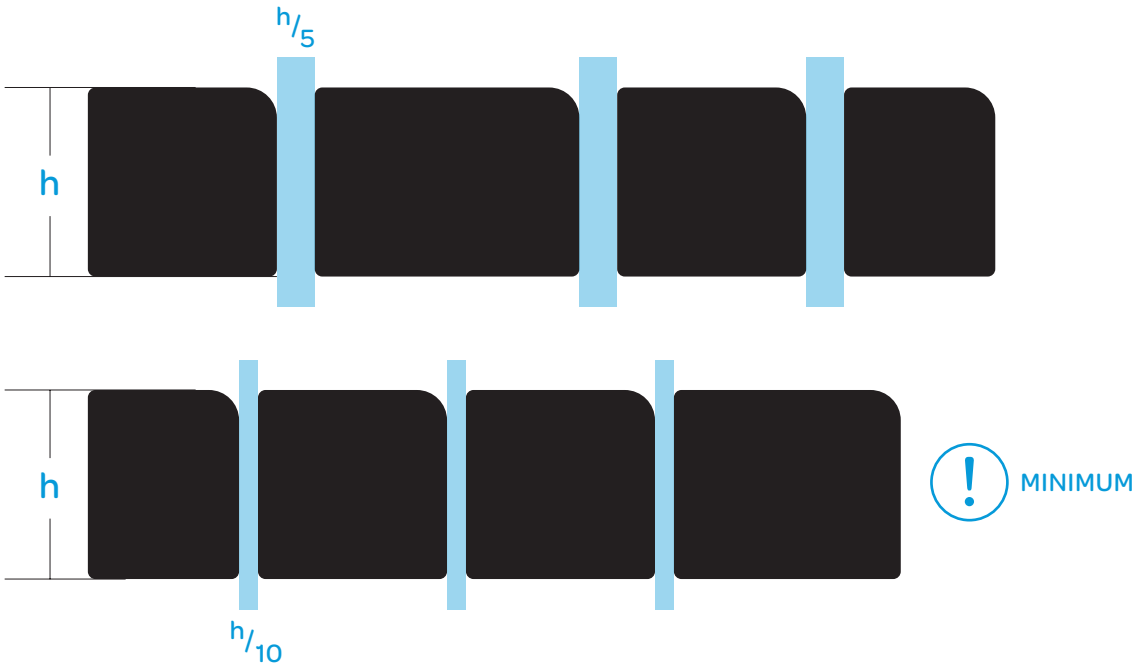
2.11.2 Suggested Widths



The five widths shown should be considered.

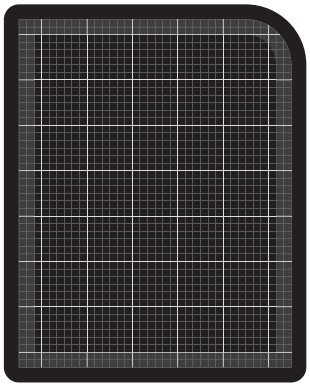
The first one shown is the regular width with square proportions. The others are 80% width of the regular one (also equivalent to 4/5 the height of the Pictogram), then 120% width, 140% width and 160%.

2.11.3 Suggested Widths with Consistent Spacing

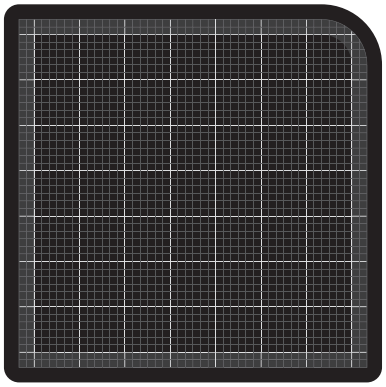


The spacing rules (Section 2.10) should be retained as Pictogram widths become variable.

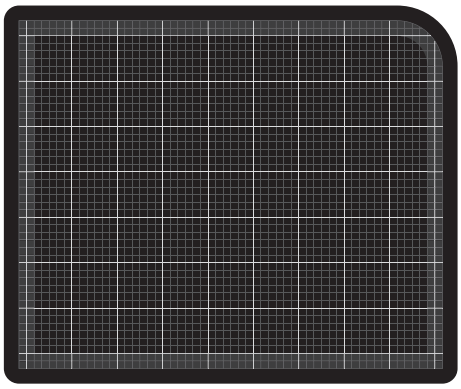
2.11.4 The Pictogram Grid for all Widths



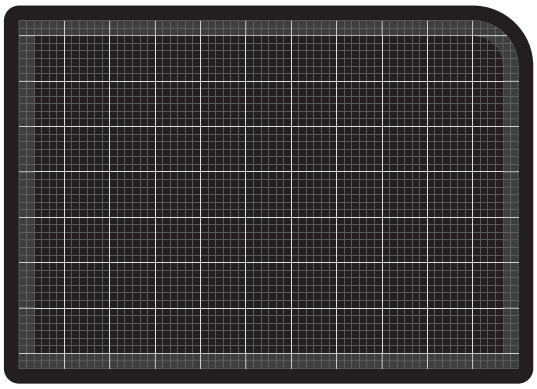
NARROW



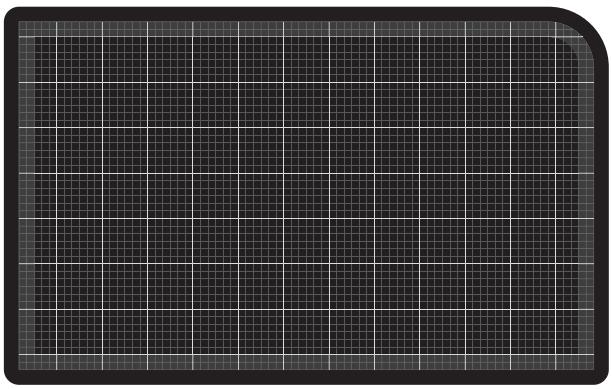
REGULAR



WIDE 1

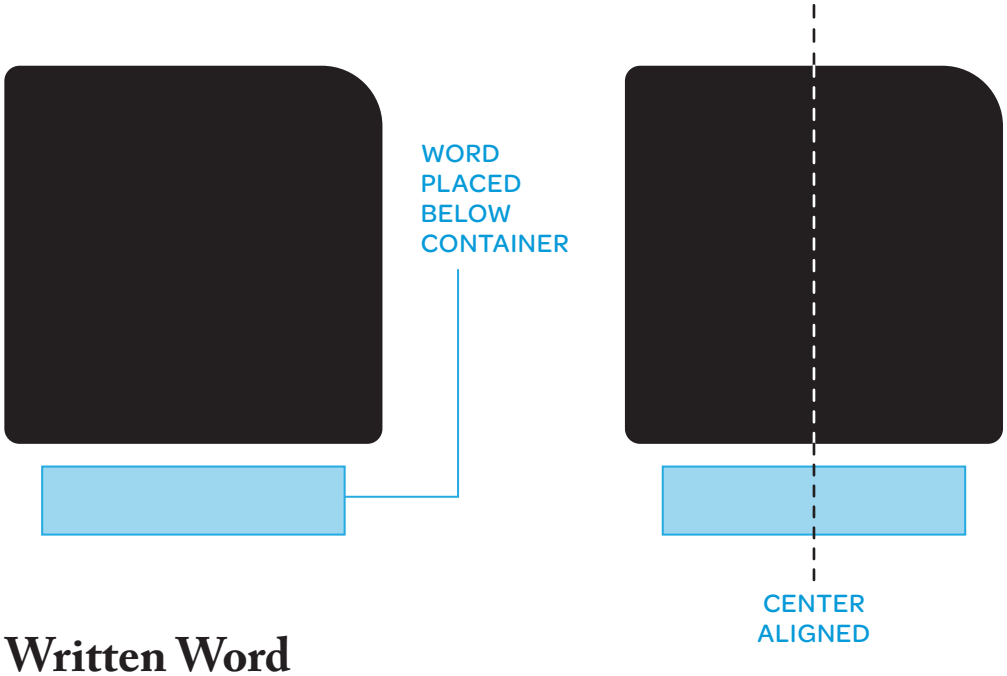


WIDE 2



WIDE 3

New widths demand a rethinking of the construction grid. Adaptations for each width are shown.



2.12 Written Word

Pictograms usually – but not always – appear alongside the written word they represent. The placement of that word has been moved below the Pictogram instead of inside of it, as it appears in current Pictograms. Having the word inside (as it is now) means the word is rendered in white over the black background and steals space from the image area that could be better used.

Moving the word below opens up that area for additional visual detail, and creates a more clear decoupling of the word from the Pictogram. This allows a Pictogram that is shown without a word to take full advantage of the space it is allotted.

This decoupling also creates some flexibility in how the word is rendered. A typeface will be suggested (Section 2.12.1), but some freedom in choice of typeface is desirable for screen use. There are native typefaces in mobile devices and operating systems that offer great benefits and will render better than a more custm typeface. This results in opitmal clarity and is worth the compromise and loss of control.

The written word should be centered aligned below its parent Pictogram.

2.12.1 Type Family

A suitable typeface should be relatively condensed to accommodate longer words. It should also be clear and well spaced without specifying special character spacing or kerning. An additional desirable quality, given the background and sponsor of this project, is that the typeface have some connection to Sweden.

Stalemate is a type family designed by Stefan Hattenbach (www.macrhino.com), that meets all the requirements above. It also has a wide character-set that allows localization to other languages.

The specific typeface recommended for use below each Pictogram is **Stalemate Medium**. The other weights, and the italics (not shown) that are part of the family could be useful for alternate uses.

pictogram

Stalemate Light
Stalemate Medium
Stalemate Heavy

by Stefan Hattenbach

píçtögråm COMPREHENSIVE CHARACTERSET

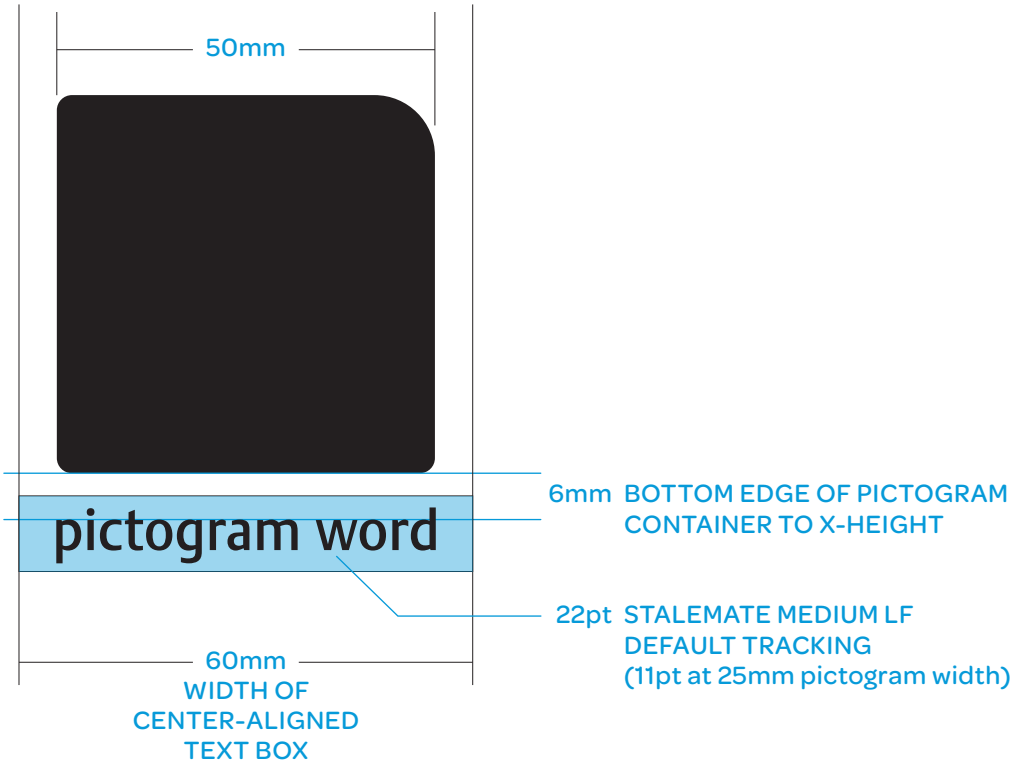
2.12.2 Word Position and Width of Text Box

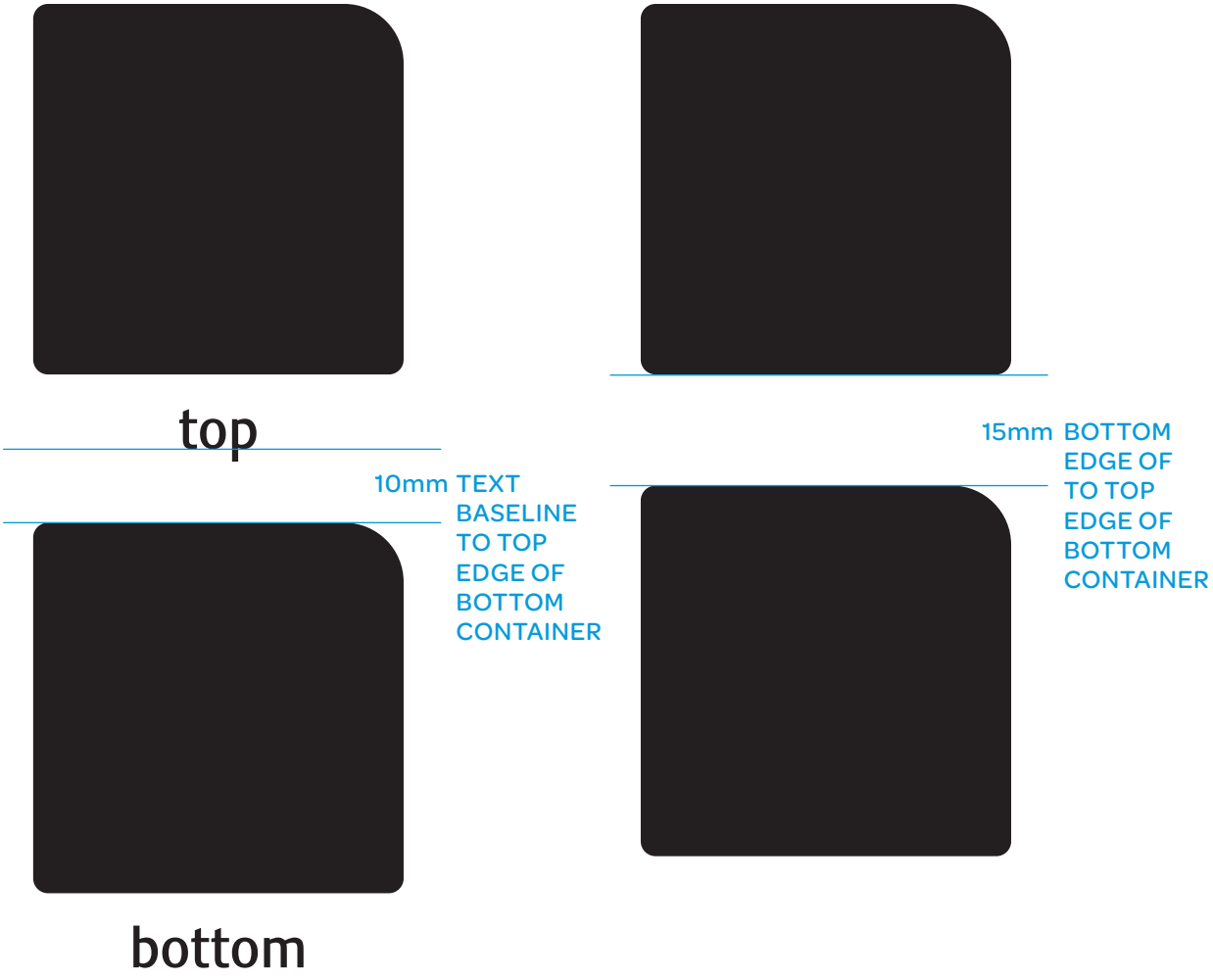
The length of words is highly variable. On the long end of the spectrum there's a risk that a long word may exceed the width of the Pictogram it sits below. When this happens there's some extra room on both sides that can be used by a long word.

While there is no known research to support this, the likelihood that two long words will appear next to each other *may* be low, which reduces the risk of words running into each other when the space between words is in the low range. The suggested width of the text box containing the center aligned word is 60mm (for a 50mm x 50mm Pictogram).

For use on screen (big or small), there are other strategies that could be considered to avoid overlap. Audio feedback for Pictograms and marquee-ing of words, maybe in conjunction, are possible strategies to manage this issue.

2.12.3 Full Specifications





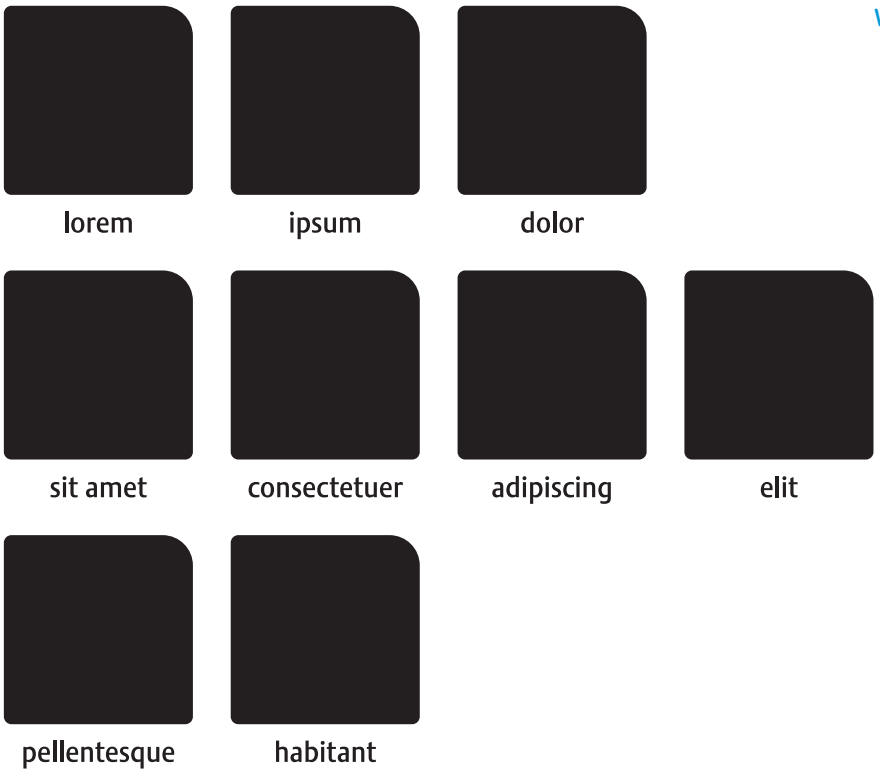
2.13 Leading/Linespacing

In addition to the spacing applied between Pictograms in the same lines (Section 2.10), some care should be taken to determine an appropriate vertical distance between different lines (rows) of Pictograms in the same message.

This distance should be comfortable and should make clear that the text beneath a Pictogram does not, instead, label the Pictogram on the next line. The distance should be 10mm for Pictograms with words, and 15mm for those without (values for 50mm x 50mm Pictograms).

2.13.1 Linespacing Applied

WITH h/5 WORDSPACING



WITH h/10 WORDSPACING

3 Examples

Ten Pictograms were redesigned to test and challenge the principles presented in this proposal.

80mm x 100mm

3.1 I/Jag

Details of interest:

This is a narrow Pictogram; 80% the width of a regular Pictogram of square proportions

The head is connected to the body instead of detached and circular

The articulation details in the arm guide the eye towards the pointing finger

The added detail helps instead of distract

The bottom padding is that of a Partial Object (2mm) suggesting the continuation of the legs beyond the limits of the container

3.1.1 I/Jag Detail

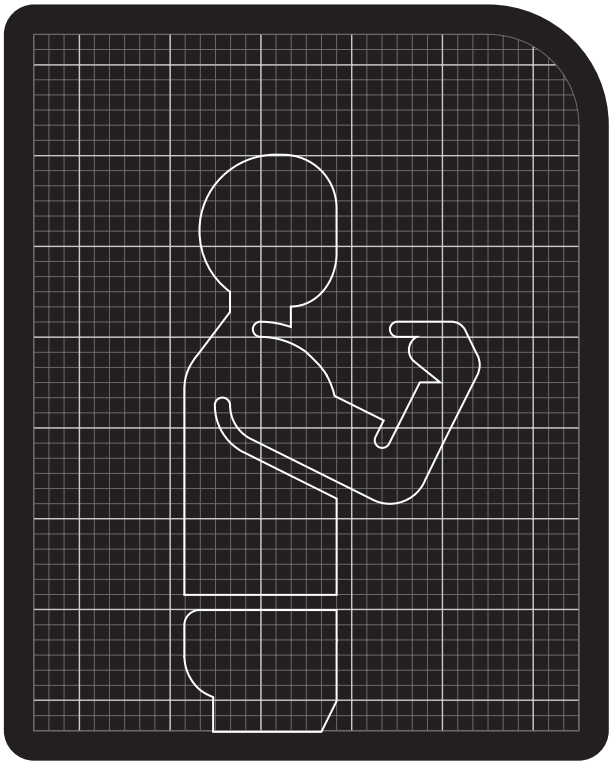
20mm x 25mm

jag

CURRENTLY USED
UNEDITED PICTOGRAM
25mm x 25 mm

40mm x 50mm

jag



80mm x 100mm

100mm x 100mm

3.2 Home/Hemma

Details of interest:

The human figure is the same as in *me/jag*, but instead of scaling it down, it is trimmed to fit at the same scale in this Pictogram

The thickness of the outer shape balances the weight of the inner human figure

The full image is a Full Object, even though the human is only partially shown

3.2.1 Home/Hemma Detail

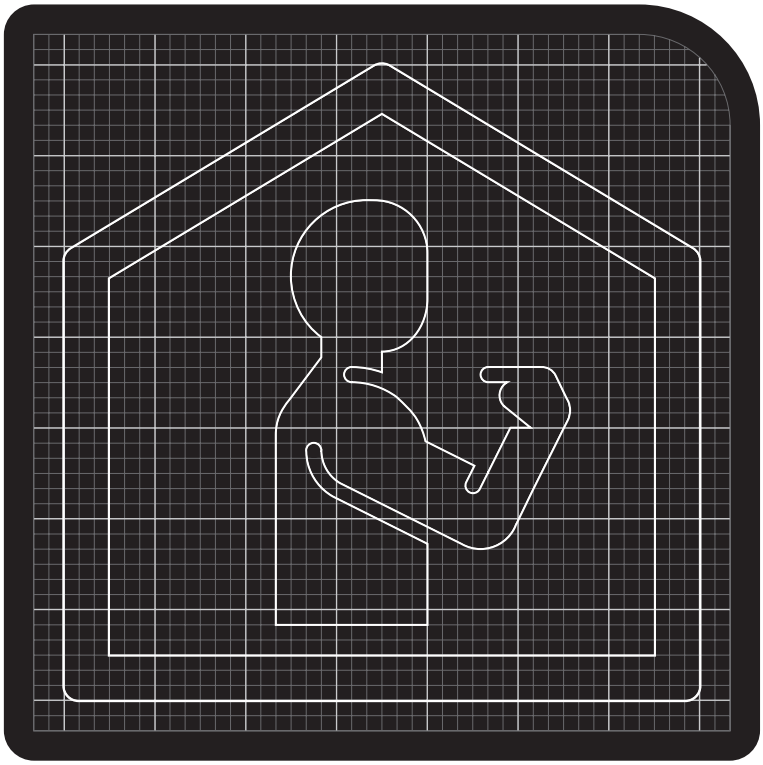
25mm x 25mm

hemma

CURRENTLY USED
UNEDITED PICTOGRAM
25mm x 25 mm

50mm x 50mm

hemma



100mm x 100mm

100mm x 100mm

3.3 You/Du

Details of interest:

The human figures depicted are centered properly within the container

The hand detail of the pointing finger is small, but the emphasis of the pointing motion is distributed across the full arm

3.3.1 You/Du Detail

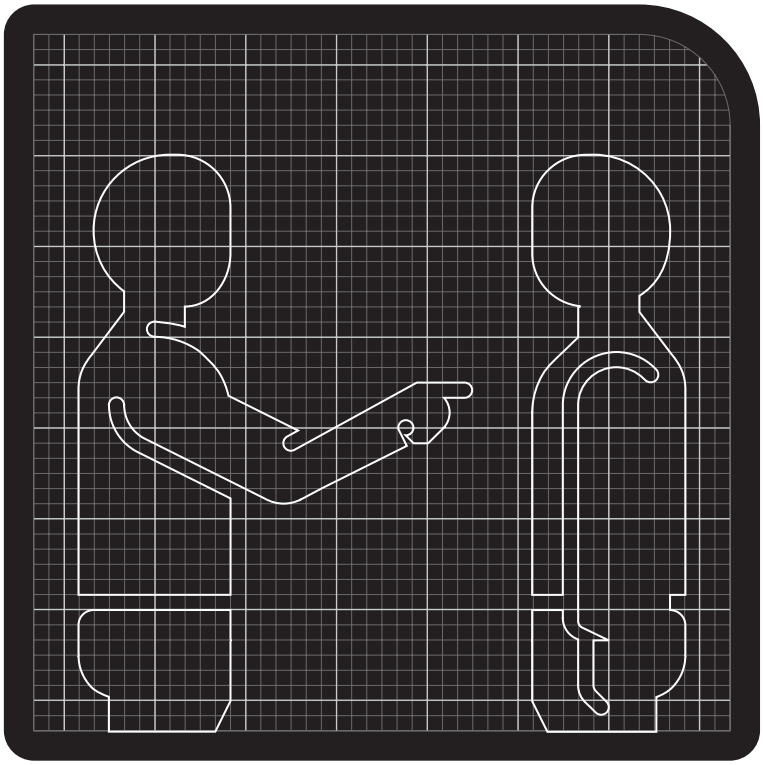
25mm x 25mm

du

CURRENTLY USED
UNEDITED PICTOGRAM
25mm x 25 mm

50mm x 50mm

du



100mm x 100mm

100mm x 100mm

3.4 Walk/Gå

Details of interest:

The figure has more human properties while maintaining some level of abstraction

A surface has been added to beneath the human to show context

The image is well centered with a light bottom bias

The surface is placed at the Invisible Baseline (Section 2.5)

3.4.1 Walk/Gå Detail

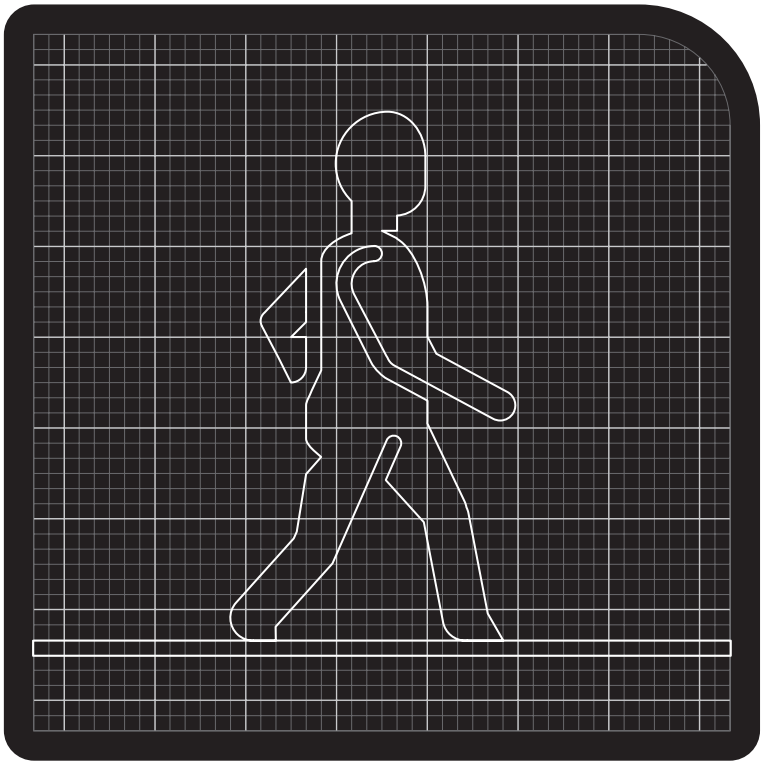
25mm x 25mm

gå

CURRENTLY USED
UNEDITED PICTOGRAM
25mm x 25 mm

50mm x 50mm

gå



100mm x 100mm

160mm x 100mm

3.5 Bus/Buss

Details of interest:

A wide Pictogram container is used to allow a more fair depiction of this longer object

A surface has been left out to emphasize the object instead of the object in context (*bus* instead of *bus riding*)

The wheels are detached because they are a telling detail in the image

3.5.1 Bus/Buss Detail

40mm x 25mm

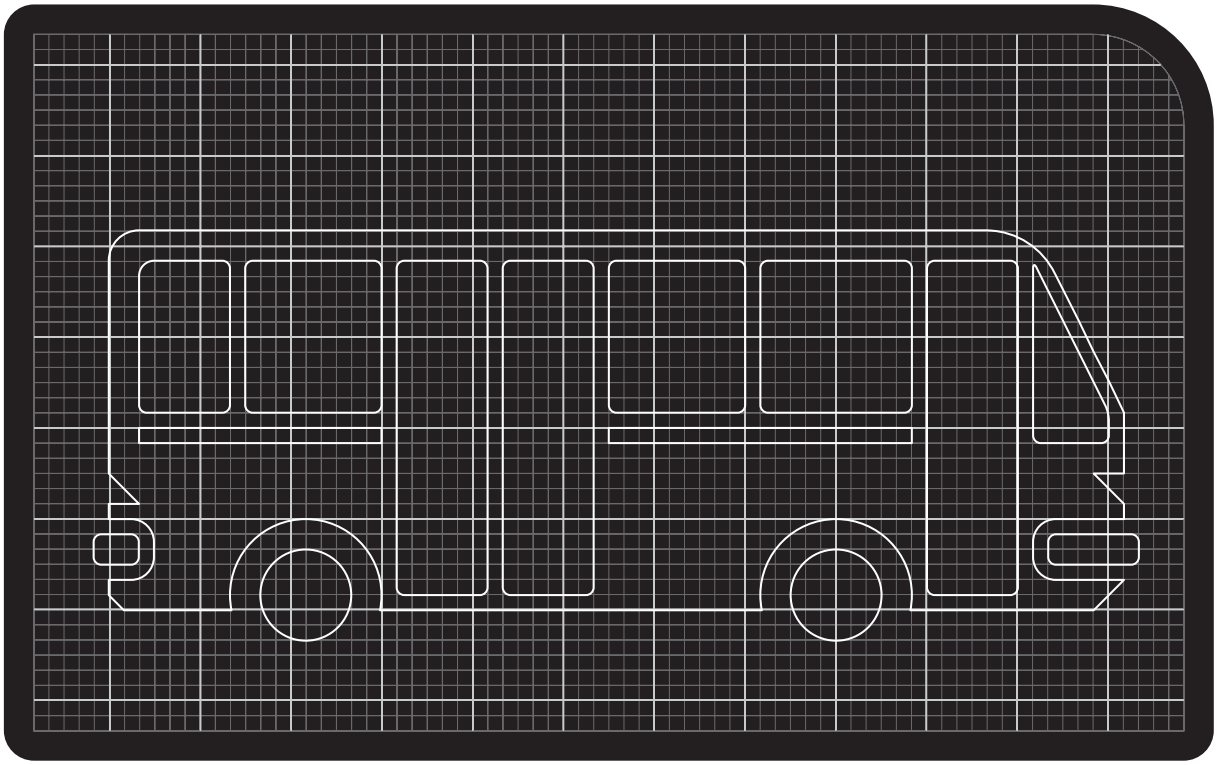
buss

CURRENTLY USED
UNEDITED PICTOGRAM
25mm x 25 mm

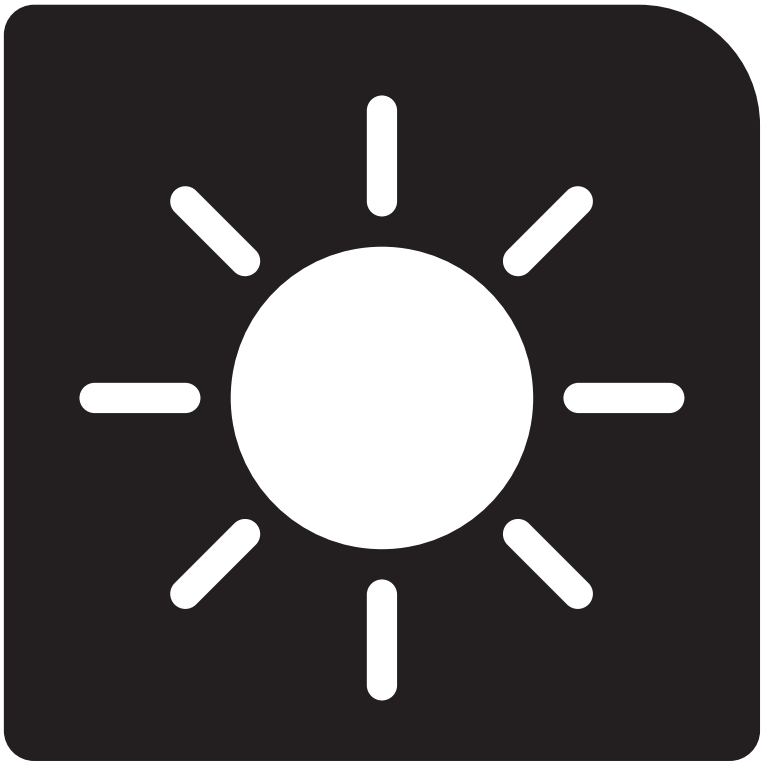
80mm x 50mm

buss

160mm x 100mm



100mm x 100mm



3.6 Sun/Sol

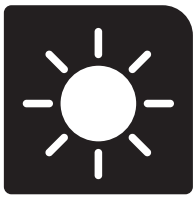
Details of interest:

The number of ray lines has been reduced (from the current Pictogram)

Angles are either straight 90° or 45°

There is a slight bottom bias to the image

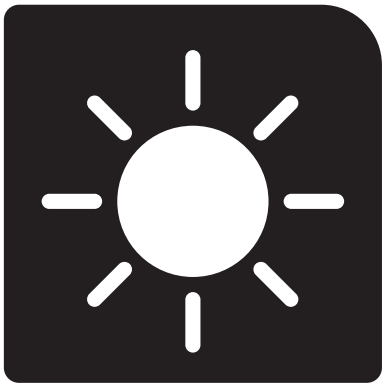
3.6.1 Sun/Sol Detail



25mm x 25mm

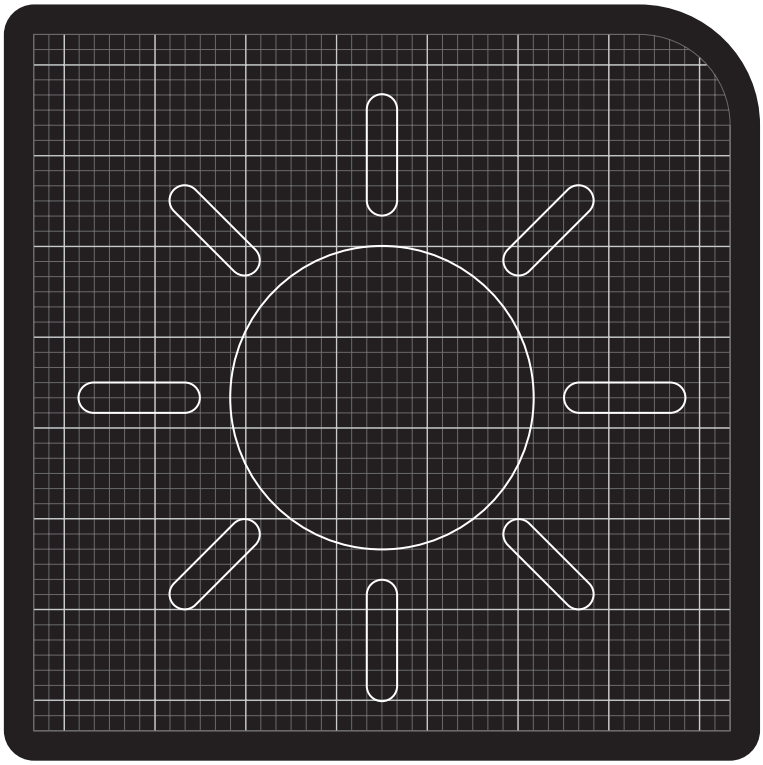
sol

CURRENTLY USED
UNEDITED PICTOGRAM
25mm x 25 mm



50mm x 50mm

sol



100mm x 100mm

100mm x 100mm

3.7 Snow/Snö

Details of interest:

The detail of the snow covered ground has been simplified (from current Pictogram)

The flakes contain very small detail but are thick enough to work at small sizes and be suggestive

The snow covered ground extends outward since it is a Partial Object (the ground carries on)

3.7.1 Snow/Snö Detail

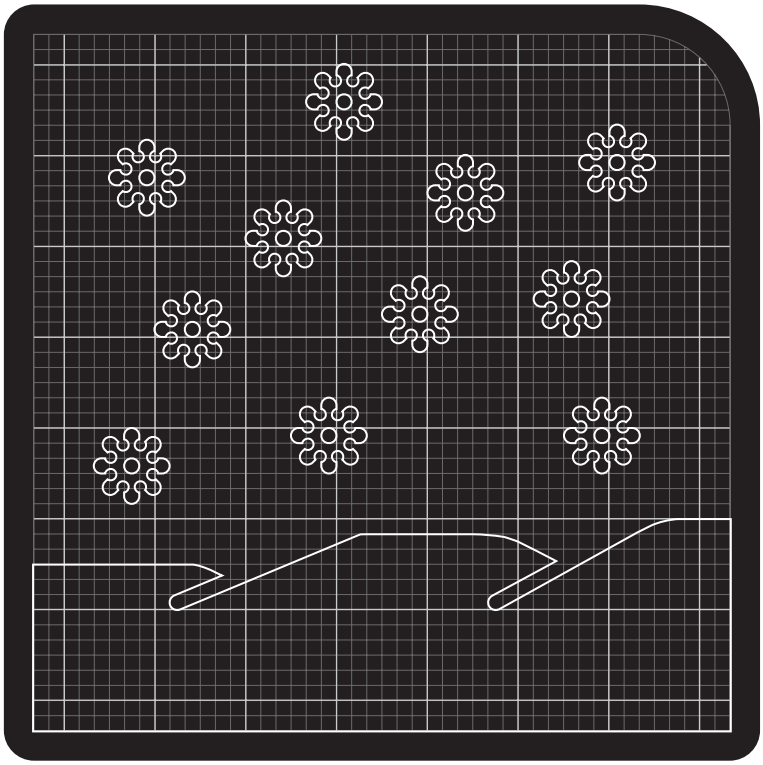
25mm x 25mm

snö

CURRENTLY USED
UNEDITED PICTOGRAM
25mm x 25 mm

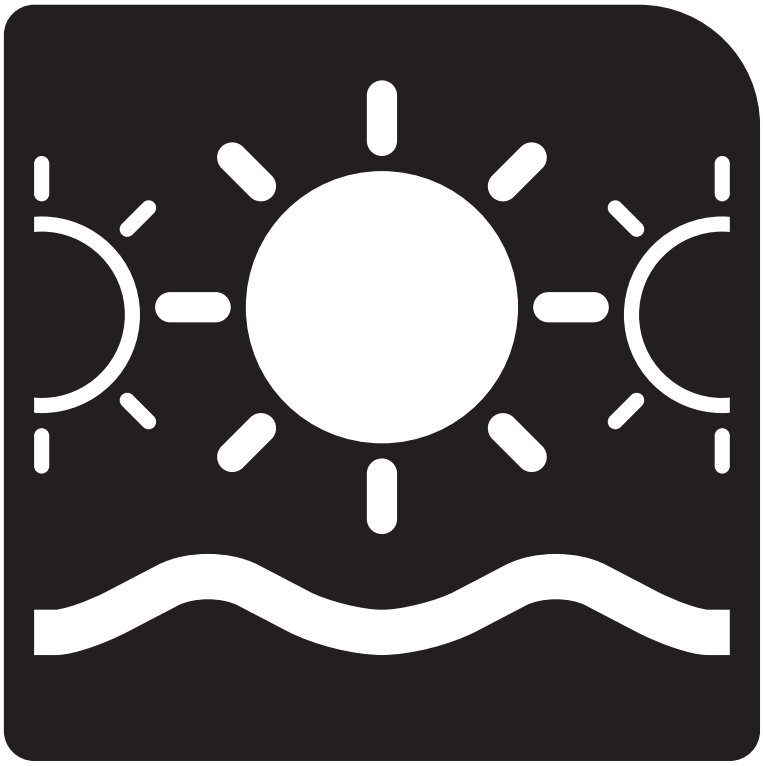
50mm x 50mm

snö



100mm x 100mm

100mm x 100mm



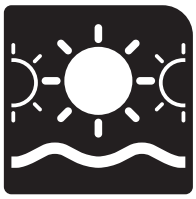
3.8 Today/Idag

Details of interest:

The number of rays has bee reduced (as in Section 3.5)

The amplitude of the wavy line has been increased to create more pronounced angles that will scale down more gracefully

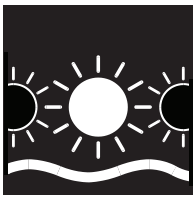
3.8.1 Today/Idag Detail

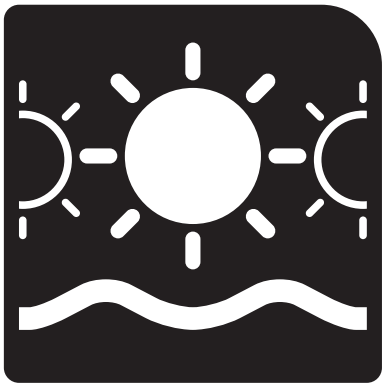


25mm x 25mm

idag

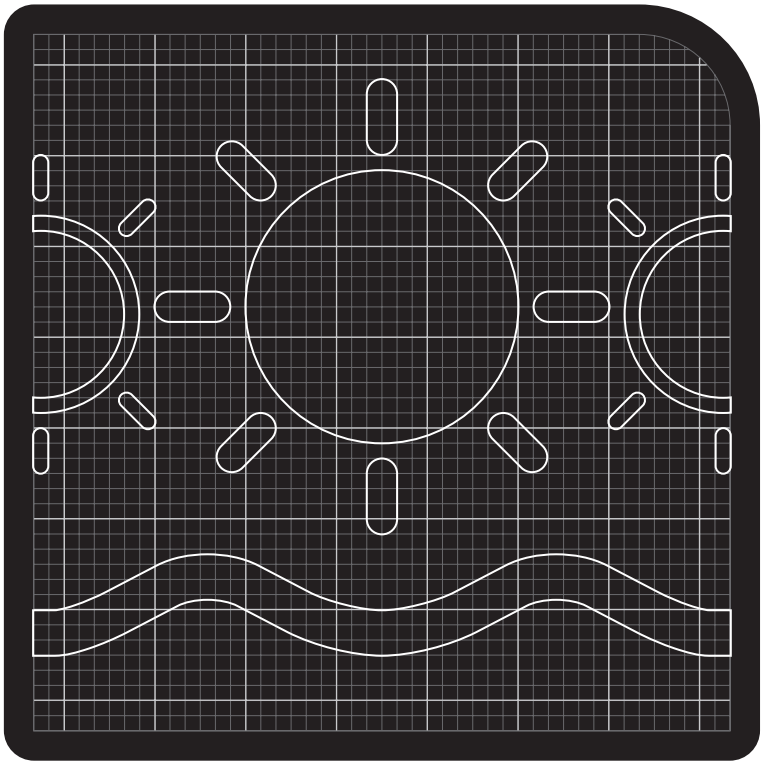
CURRENTLY USED
UNEDITED PICTOGRAM
25mm x 25 mm





50mm x 50mm

idag



100mm x 100mm

100mm x 100mm

3.9 Happy/Glad

Details of interest:

The overall form has been simplified

The level of abstraction of the face has been increased, emphasizing the expression over the general form of the head

The image is horizontally centered with a slight bottom bias

3.9.1 Happy/Glad Detail

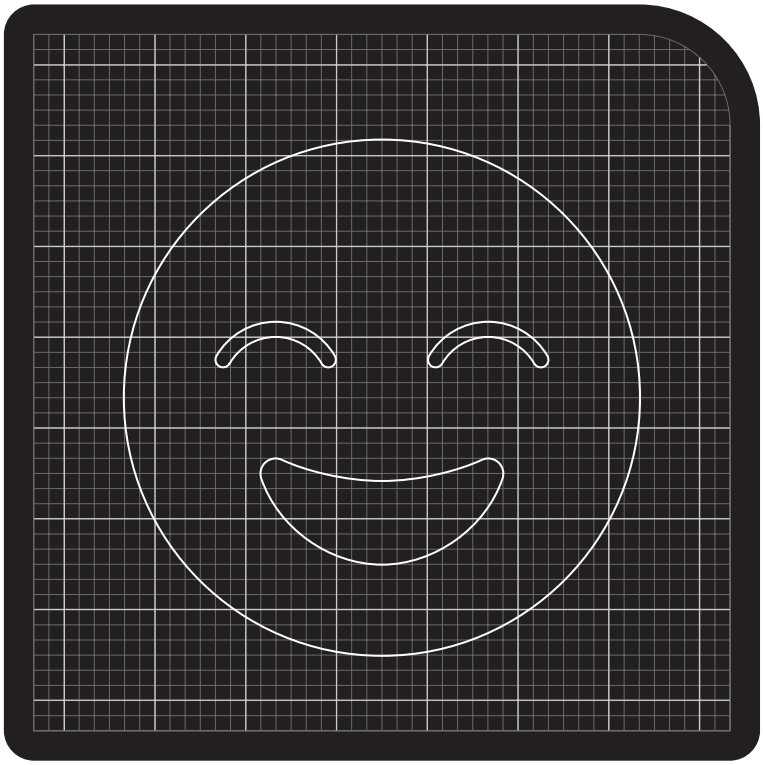
25mm x 25mm

glad

CURRENTLY USED
UNEDITED PICTOGRAM
25mm x 25 mm

50mm x 50mm

glad



100mm x 100mm

100mm x 100mm

3.10 Boring/Tråkigt

Details of interest:

The forms have been simplified

The face details have been thickened (from current Pictogram) for better scaling

The expression is less dramatic (than the current Pictogram)

3.10.1 Boring/Tråkigt Detail

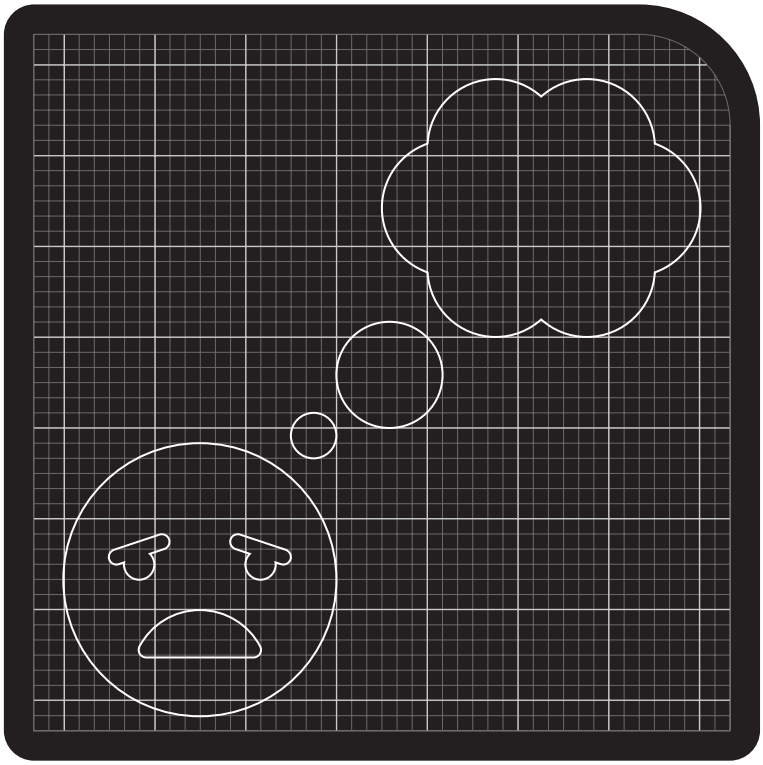
25mm x 25mm

träkigt

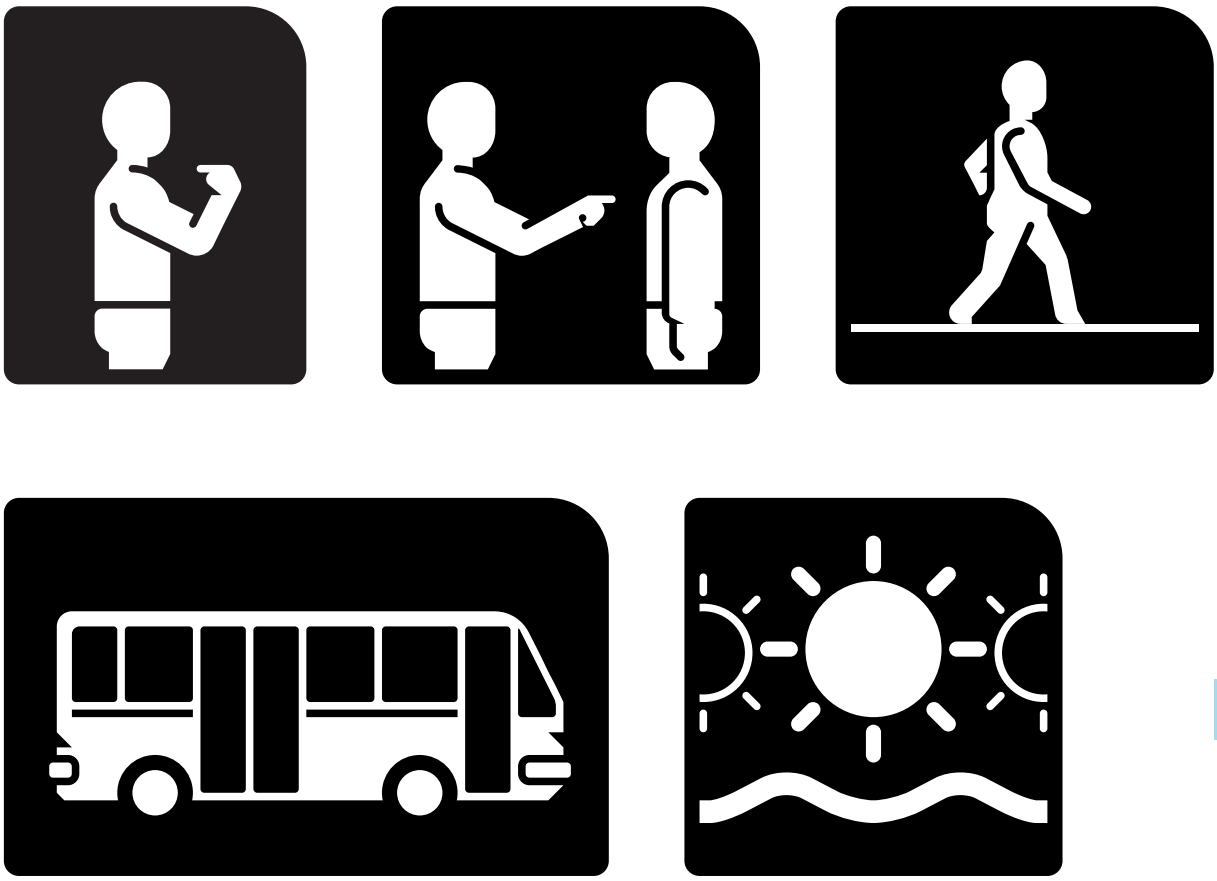
CURRENTLY USED
UNEDITED PICTOGRAM
25mm x 25 mm

50mm x 50mm

träkigt



100mm x 100mm



3.11 Putting them Together

Details of interest:

The family feels uniform in image density

The variable pictogram width eases reading

Shared shapes form a bond between Pictograms that are related (*I/Jag* and *You/Du*)

While the top-right corner is more rounded than the rest, when seeing a full message that detail fades to the background

The space between rows is larger than that between Pictograms in the same row

4

Possible Variants to Pictogram Expression

There are many opportunities to extend the range of expression possibilities of Pictograms. With simple modifiers, meaning can be altered, emphasis can be added, and a personal voice can be conveyed. With greater adjustments, more personal and unique additions to vocabularies become available.

SINGLE COLOR - BLACK ONLY

BLACK AND WHITE

4.1 True Single Color (for utility)

Current Pictograms are white shapes over a black background. When printed the white forms take on the color of the paper they are printed on – typically white. When used on the screen the white forms remain when Pictograms are placed over a background other than white.

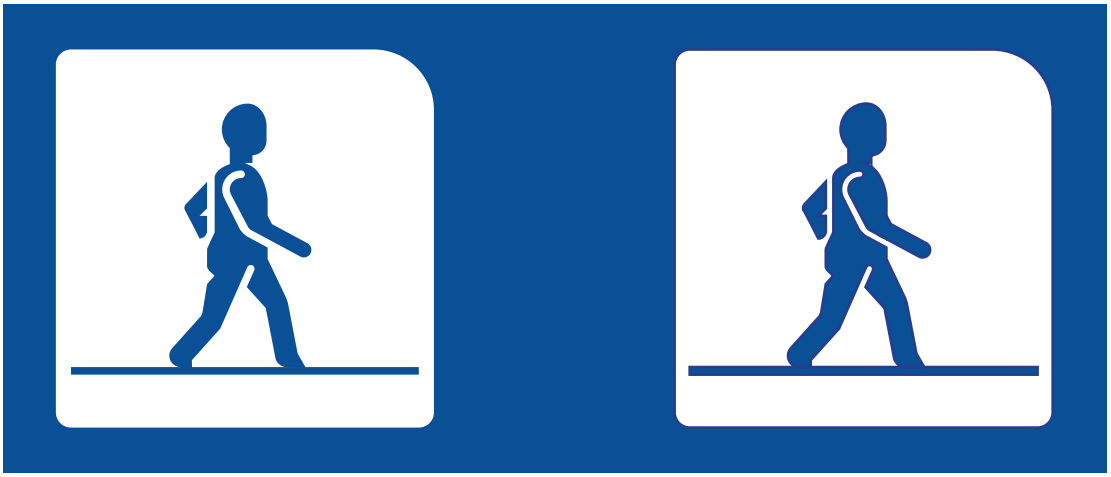
If the forms where *knocked-out* or tuned into *holes* in the container, the background could bleed through. This allows the use of Pictograms in applications where you can only have one color or one value. This includes projection in light, shadows, as relief on a material (emboss/deboss), screen printing, and perhaps others.

This type of use may be marginal, but generating the simplest artwork for distribution of each Pictogram will open new opportunities.

4.1.1 True Single Color Applied

Black over a yellow background.

Black pictogram over a tan background.



THE SINGLE COLOR CAN BE A COLOR OTHER THAN BLACK

Unaltered Pictogram in white over blue.

The positive space (white) has been thinned to account for optical weight changes in reverse.

REVERSED (1mm OUTLINE)

REVERSED (2mm OUTLINE)

4.2 Reverse (for utility)

For a greater range of uses, Pictograms can be reversed so the container is white (or hollow) and the images within are black. In print, this is less taxing on ink or printer toner. Depending on their size the outline around the container should be either 1mm or 2mm (for a 50mmx 50mm Pictogram), growing inward from the perimeter of the container (not outward).

This use might also be a preferred style for users who would like a language that is a little closer to written language and is more discreet than using the very noticeable regular black containers.

Reversing the colors might affect images in unpredictable ways, so it is advisable to examine results for each Pictogram and make necessary changes to achieve maximum clarity in this new use.

4.2.1 Reverse Applied

Reverse with 2mm outline
over tan background.

Reverse in yellow with a 2mm outline
over a grey background.

4.2.2 Additional Considerations when Reversing

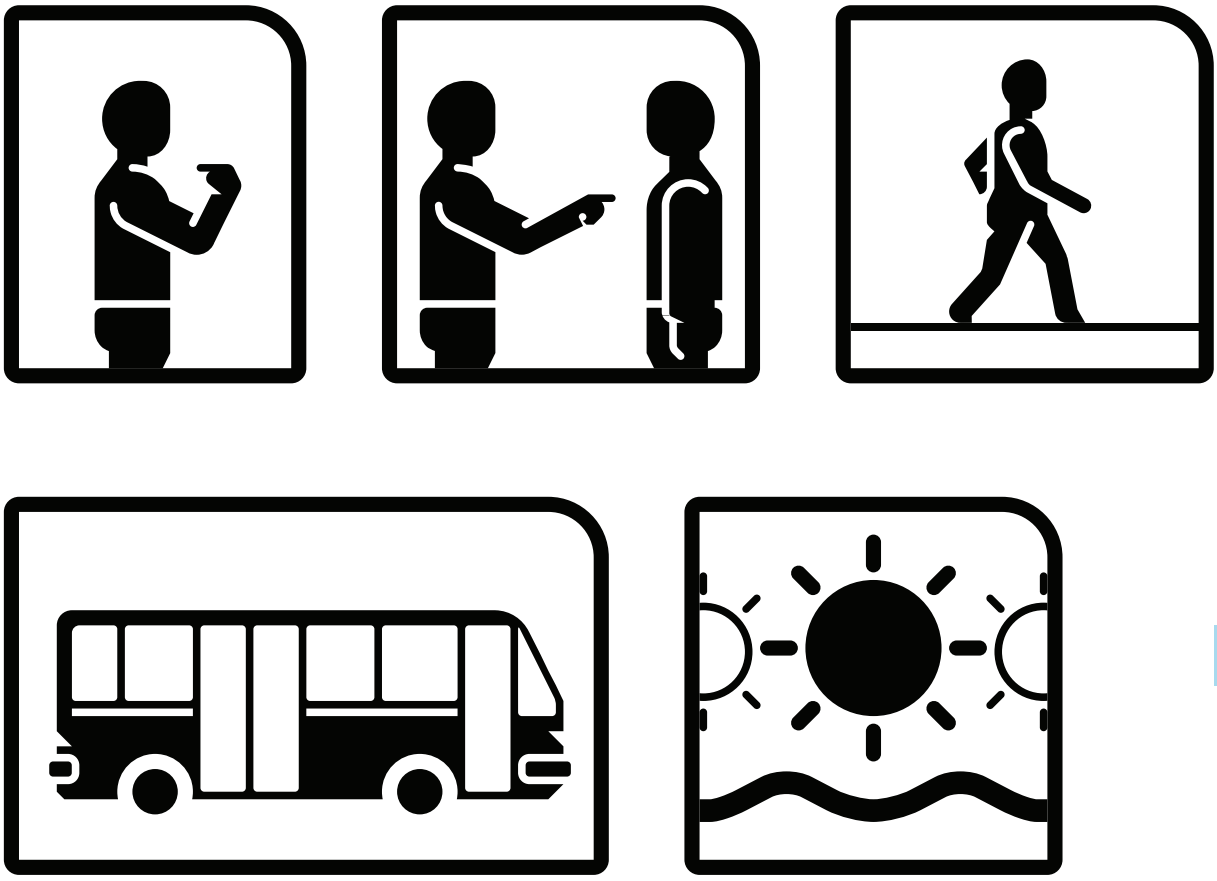
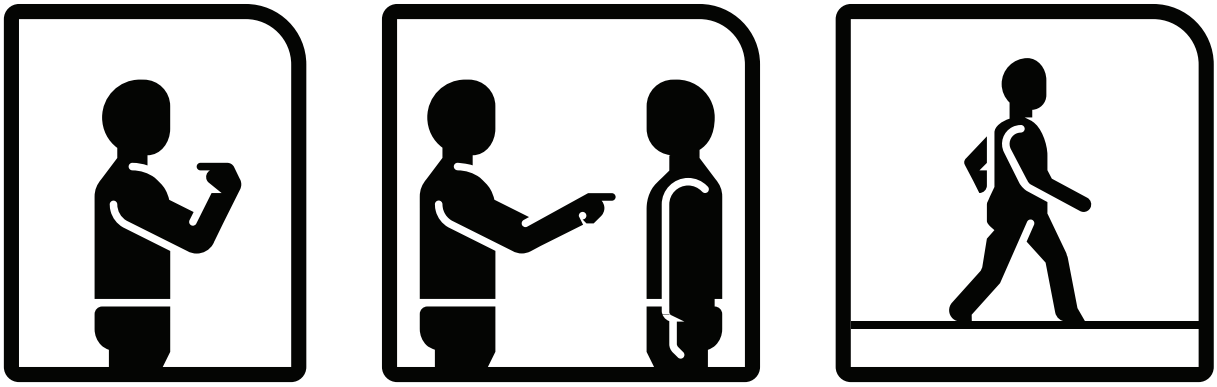
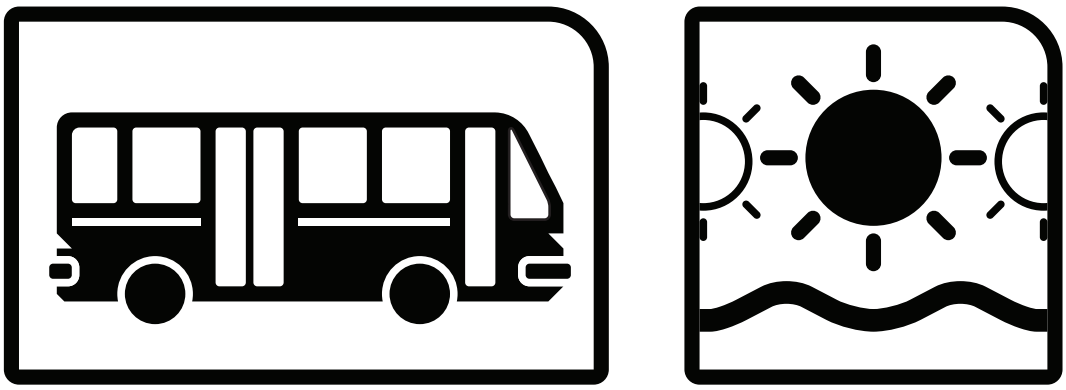


IMAGE WEIGHT ISSUES MAY ARISE; BUS PICTOGRAM LOOKS TOO LIGHT

The Pictograms shown hold their shapes well when reversed, except for the bus Pictogram. Some lines in the bus become too thin with the new black/white distribution.

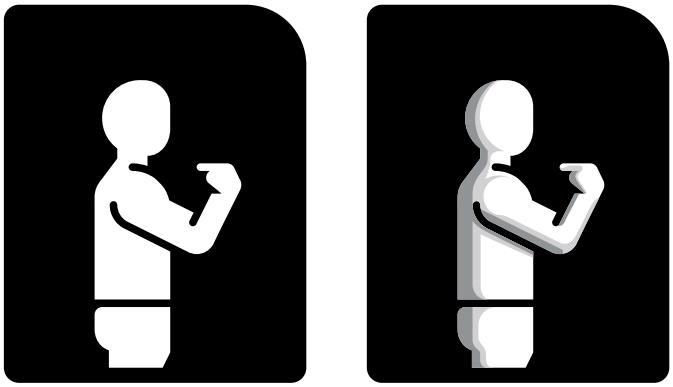




BUS PICTOGRAM LOOKS BALANCED

The issues with the Bus Pictogram have been corrected so the overall weight of the Pictogram more closely matches the rest in the sentence. The changes are small but very significant. It is recommended that Pictograms be studied if reversed to see additional edits are necessary.

If edits aren't possible or practical, meaning is retained and shouldn't be lost – but the results may look somewhat out of balance and less than optimal.



WITHOUT SHADING WITH SHADING

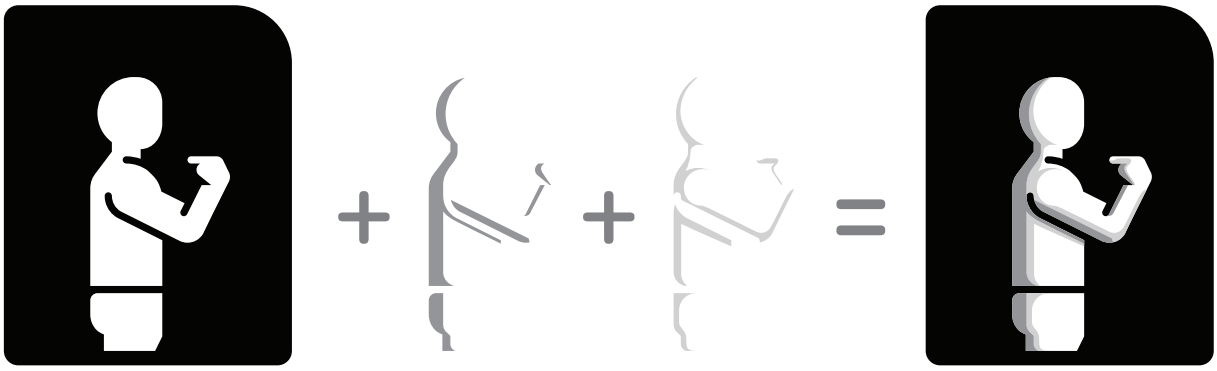
4.3 Shading (for utility)

For added detail, a shading system could be implemented to aid in communicating meaning. By adding shading within the forms of a Pictogram one can suggest depth and detail that is hard to do with a single color.

For screen use, where color doesn't come at a cost, this is a quick enhancement.

The detail is intentionally low (only two shades of black are added in the sample shown), so they may be mixed in with single color Pictograms. This is important, since the development of shading may be gradual and some words would benefit from it more than others.

4.3.1 Shading Steps



BASE SINGLE COLOR PICTOGRAM

40% BLACK DARK SHADOWS

20% BLACK LIGHT SHADOWS

SHADED COMPOSITE

The regular single color Pictogram with a two layers of partial black yield a more descriptive form. The gain show in the sample is small; in more complex Pictograms with depth and multiple objects it could be far more dramatic.

80mm x 100mm

NEGATIVE WITHOUT
WRITTEN WORD

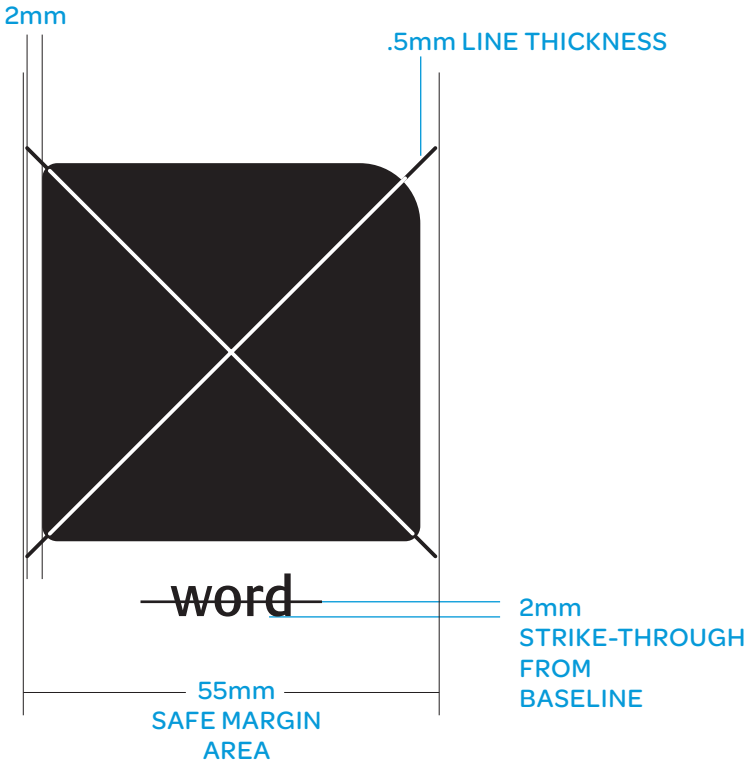
NEGATIVE WITH
WRITTEN WORD

4.4 Negative (for utility)

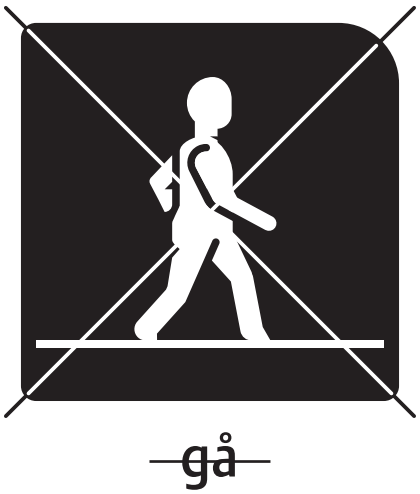
There is currently a pictogram to indicate a negative. Used in conjunction with another Pictogram, a negative for that word is formed.

Creating a negative in a more efficient and direct manner has clear benefits. The connection becomes less ambiguous (no question as to which Pictogram the negative applies to). This is a technically simple function that can be added for screen applications by layering the strike-through bars over any existing Pictogram.

4.4.1 Negative Specifications



4.4.2 Negative Applied



PRINT USE
WITH WRITTEN WORD

LINE THICKNESS OF STRIKE
ADJUSTED FOR SCREEN USE

Screen use is likely to demand thicker strike-through bars, so it is necessary to test on intended devices to find the adequate thickness.

4.5 Color (for personal expression)

Color is a very simple way to allow personal expression to come through in a message. A screen-based application can be configured to allow certain colors to be used, much the same way colors for text can be specified in a word processor.

An important consideration is that of adequate contrast. To prevent poor color selection by a user, choices should be limited to pre-configured colors that are known to work well without a penalty on message clarity.

There are several ways to introduce color. Pictogram containers can be colored, images within containers can be colored, backgrounds can be colored, or combination of these elements can be colored simultaneously. Even with a limited number of *safe* colors, the potential for unique combinations of the above applications of color creates several choices that a user may adopt as their personal style signature.

4.5.1 Color Applied

SINGLE COLOR APPLIED TO PICTOGRAMS

SINGLE COLOR PICTOGRAMS OVER A COLORED BACKGROUND

COLOR APPLIED TO CONTAINER AND BACKGROUND

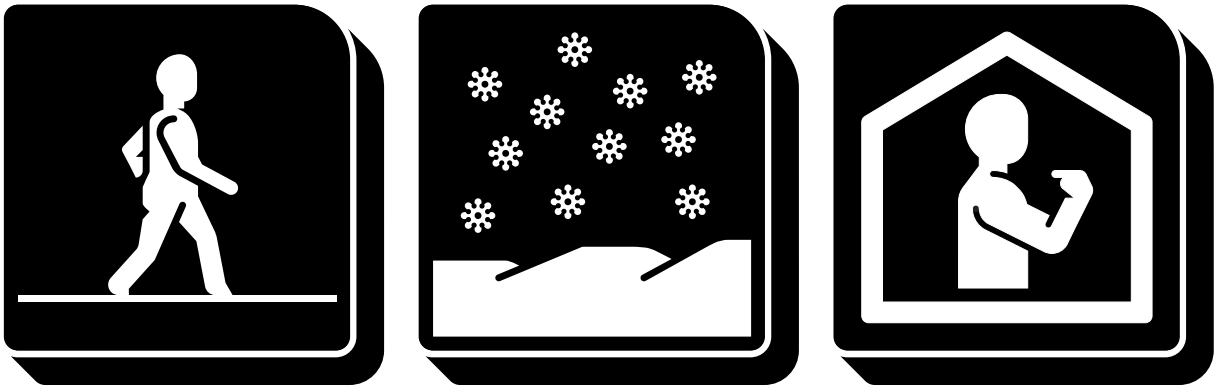
COLOR APPLIED TO POSITIVE AREAS WITHIN PICTOGRAMS

COLORED BACKGROUND ONLY USING BLACK AND WHITE (2 COLOR) PICTOGRAMS

REGULAR BOLD REGULAR

4.6 Boldface (for utility and personal expression)

A *bolding* option would create the possibility of adding emphasis to a word. A bold word can be created by adding a 2mm outer border (for a 50mm x50mm Pictogram), and by bolding the written word when it appears.



3D BLOCK EFFECT

4.7 Fonts (for personal expression)

In addition to color (Section 4.5), the possibility for personal expression can be improved by creating different Pictogram *fonts*. As in written words, the style of a word can influence its interpretation.

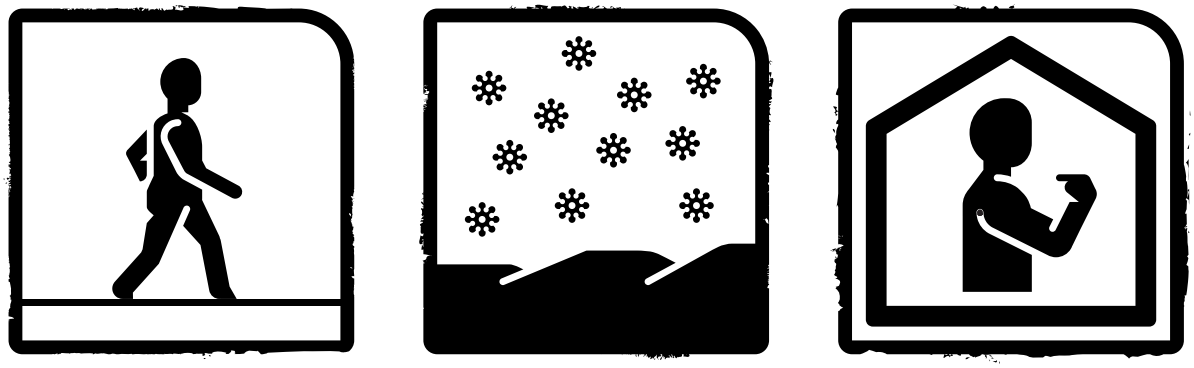
It is critical not to alter the visual content inside a Pictogram, because recognition is based on familiarity and even small changes within an image would require constant relearning of words. It's possible, however, to make changes to the border or the outside of a Pictogram container to add character. By restricting the form of expression in this way, a message can gain *some* character and offers the message author *some* creative control over the form of the message.

It's possible that fonts may offer even more than diversity in style. Ligatures in a written font connect certain letter pairs (fi, fl, ff). In a Pictogram font, ligatures could be extended to connect words that belong to the same sentence (or row, if one assumes one sentence per row). This injects a structural element to a message that allows for a more clear understanding of a message.

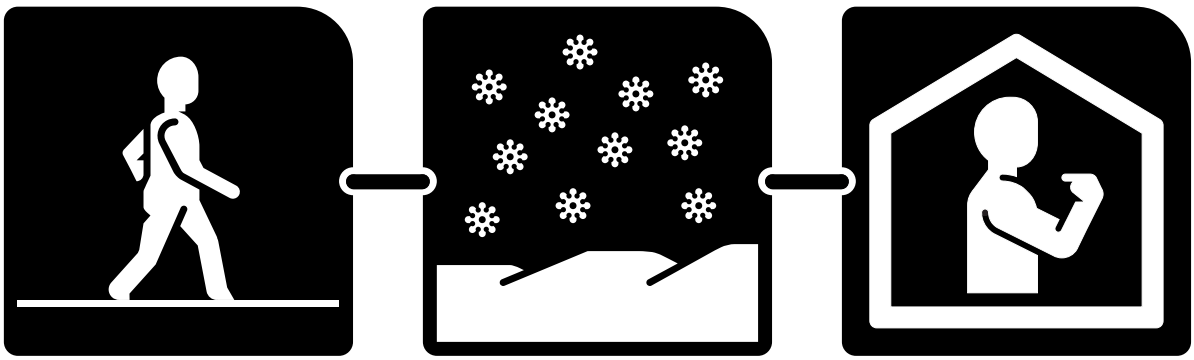
4.7.1 Font Possibilities

3D BLOCK EFFECT IN REVERSE

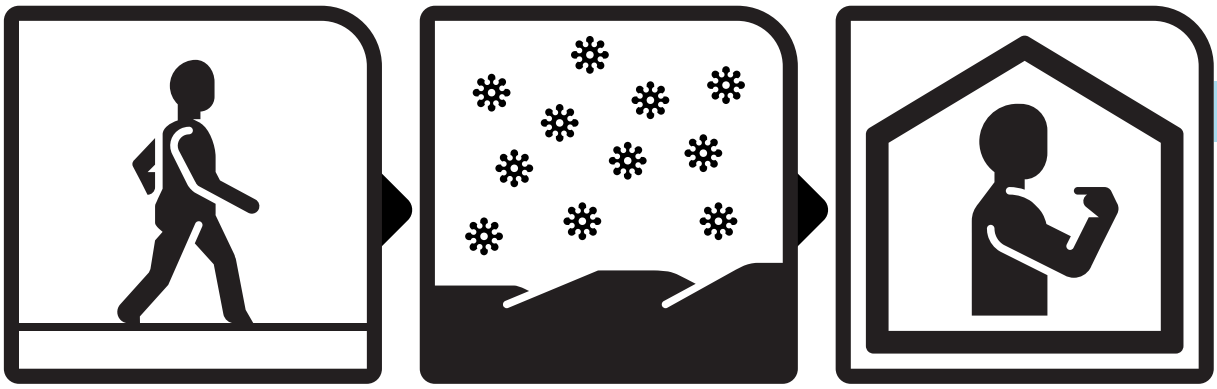
ROUGH EDGES



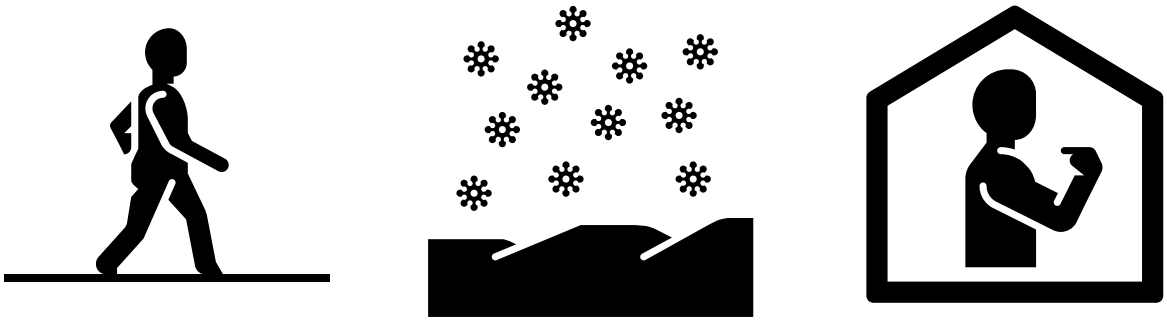
ROUGH EDGES IN REVERSE



PICTOGRAM LIGATURES CONNECTING WORDS IN THE SAME SENTENCE

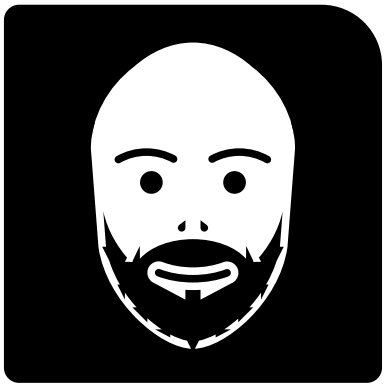


PROGRESSION INDICATORS; LAST WORD IN A SENTENCE DOESN'T NEED A POINTER



A MORE MINIMAL APPROACH WITHOUT CONTAINERS AND MORE SPACE BETWEEN WORDS

GENERIC FACE



PERSONALIZED FACE

4.8 Personalized Pictograms (for personal expression)

For even greater personal expression, a system of customized language sets can be envisioned. Using familiar and common objects, people and places rendered as Pictograms, their integration with the shared vocabulary would be seamless.

In such a scenario, care should be taken in their use – if customized words become too dominant in a users' personal vocabulary they limit a that person's learning and knowledge of the greater shared vocabulary.

5 Final Thoughts

5.1 Suggested Next Steps

The recommendations in this proposal are a first step to attempt a redesign of a set of existing Pictograms (beyond the ten examples shown). Given the diversity across the library, new considerations are bound to arise – especially with words that are harder to depict. With these new challenges, the guidelines will need to be revisited and edited as new knowledge and ideas surface. The current guidelines shouldn't be written off if they lose relevance with age and new knowledge; they should be re-written.

To identify issues and validate the results achieved by following the suggestions in this proposal, it would be helpful to distribute the task of designing Pictograms across a team. With more designers and more input, the pace of discovery, creation and progress will become much quicker. The order of design (or redesign) is also important. The distribution of Pictograms to be redesigned should have some justification behind it – common words first, difficult words first, new words first or another chosen strategy.

Finally, this proposal doesn't reach beyond initial creation. To be truly effective, the results of a redesign should be tested – with target users, ideally. The strategy for this process also requires some planning and careful thought. There are known difficulties in testing with the target group, where the scope of disabilities is very wide, but this step is critical and can't be ignored to fulfill the goal of enabling communication. Testing will offer insight that can be used in a new round of designs.

5.2 Suggested Resources

Dreyfuss, Henry (1972): Symbol Sourcebook. John Wiley Sons, Inc.

Ota, Yukio (1987): Pictogram Design. Kashiwa Shobo Publishers, Ltd.

Pierce, Todd (1996): The International Pictograms Standard. Cincinatti, St Publications, Inc.

Mac Rhino Fonts
http://www.macrhino.com

Fountain Digital Type Foundry
http://www.fountain.nu

About the Author

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