



High performance. Delivered.

Conceptual Design: The Essence of Software

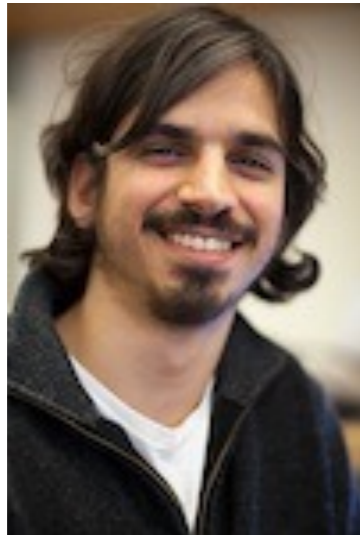
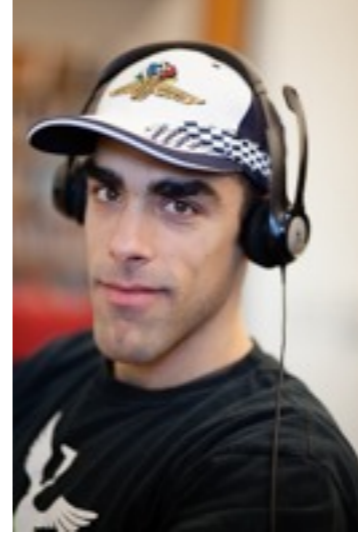
Daniel Jackson, MIT



where I work: Gehry's Stata Center

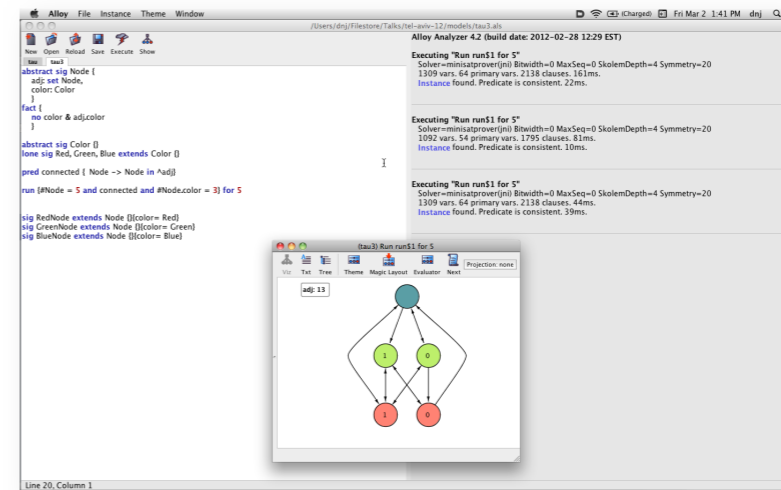


software design group



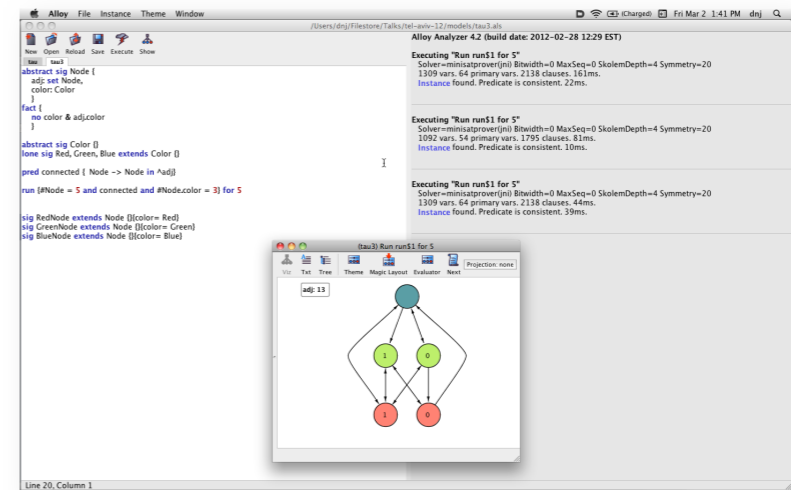
software design group

software design group



Alloy design analysis

software design group

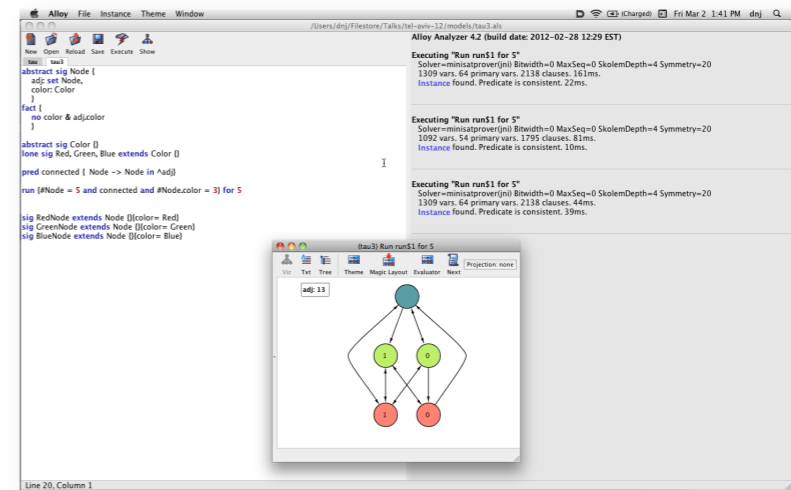


Alloy design analysis



finding security holes

software design group



Alloy design analysis

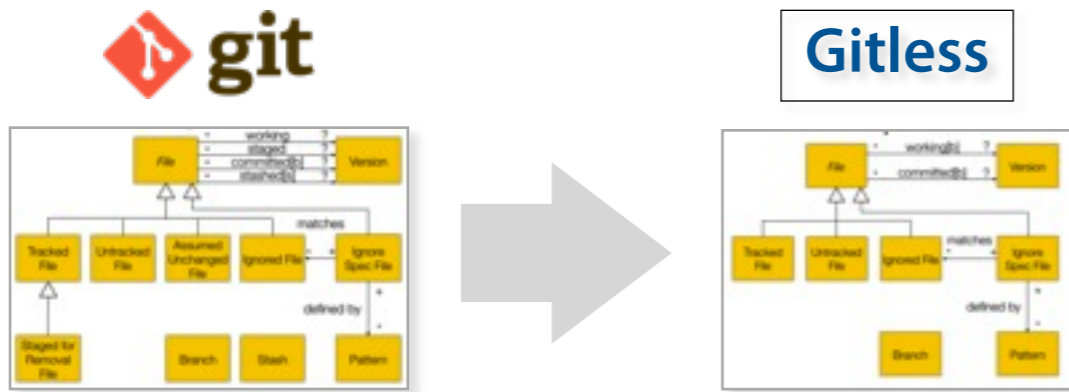


event-based apps

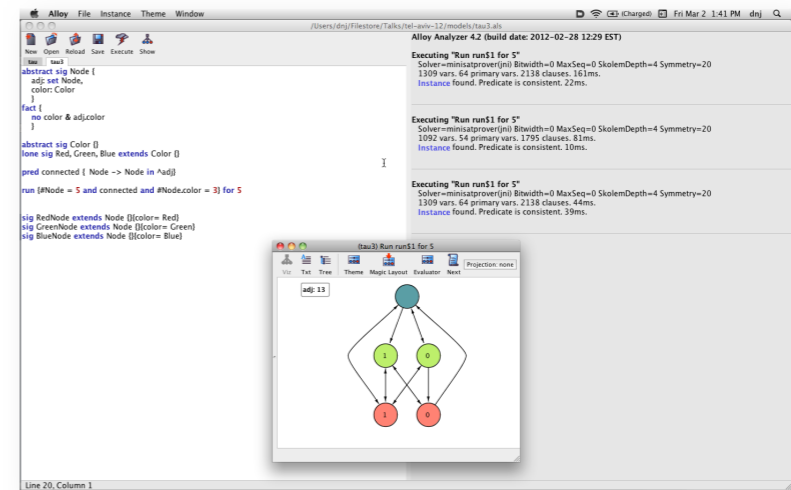


finding security holes

software design group



rethinking software design



Alloy design analysis

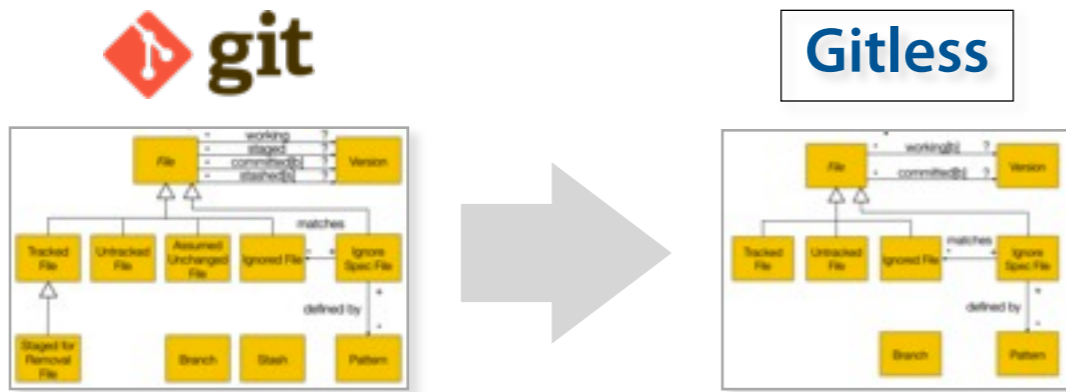


event-based apps

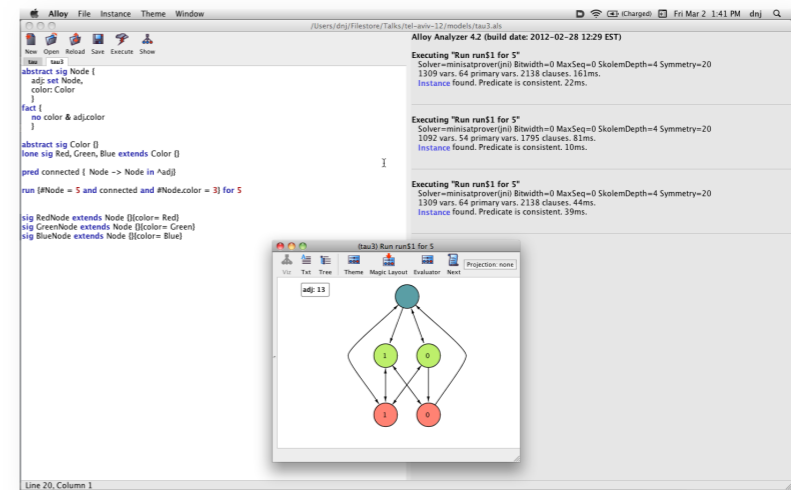


finding security holes

software design group



rethinking software design
going beyond code level



Alloy design analysis
exploiting SAT



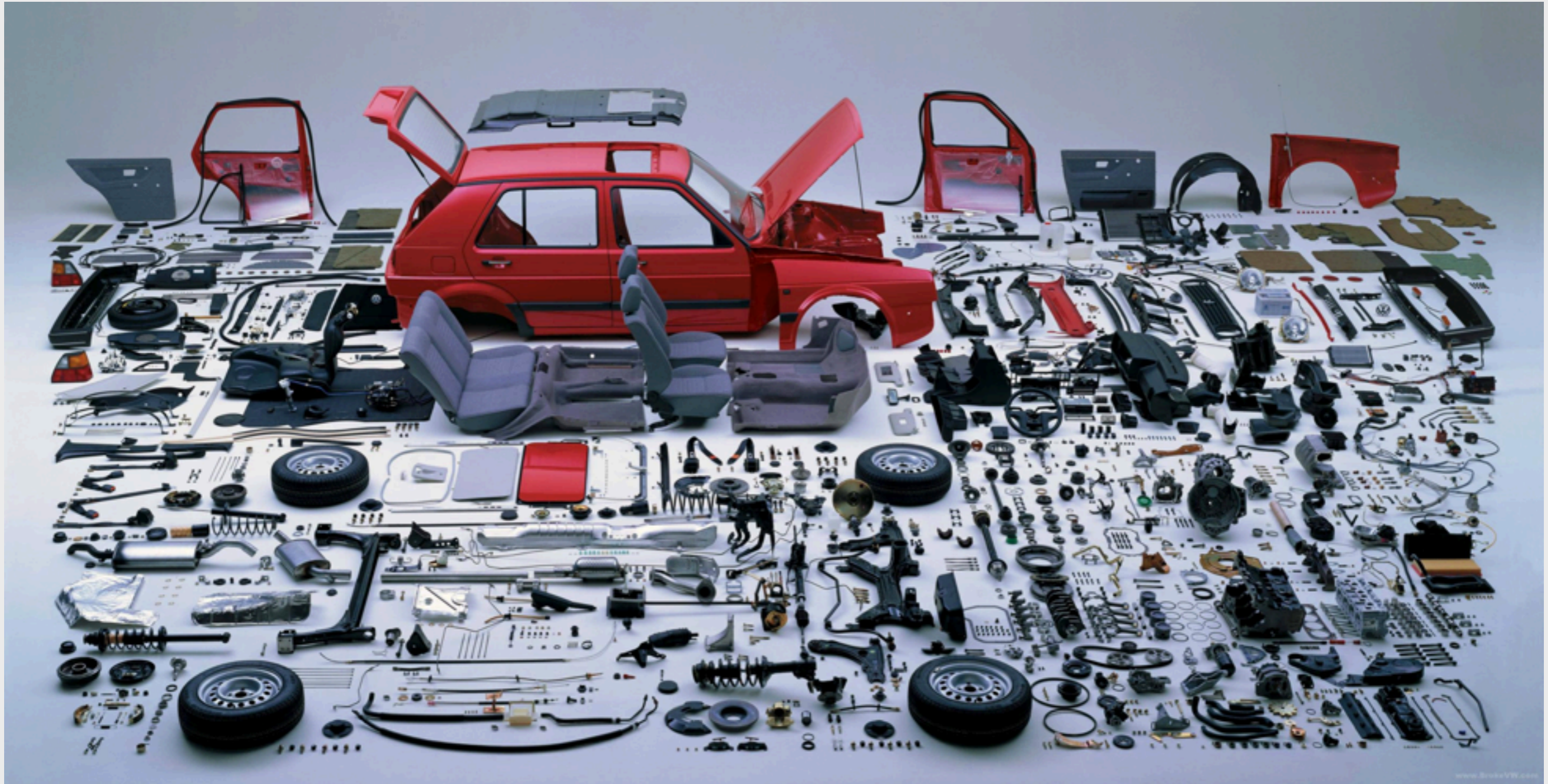
event-based apps
new paradigms



finding security holes
lightweight formalism

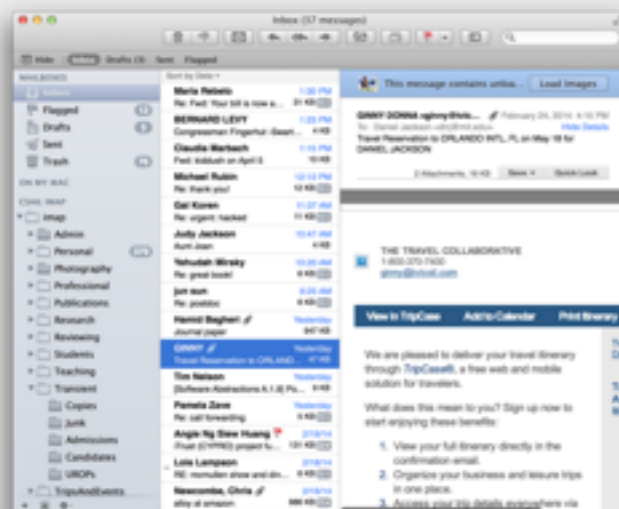
introduction

things built from parts

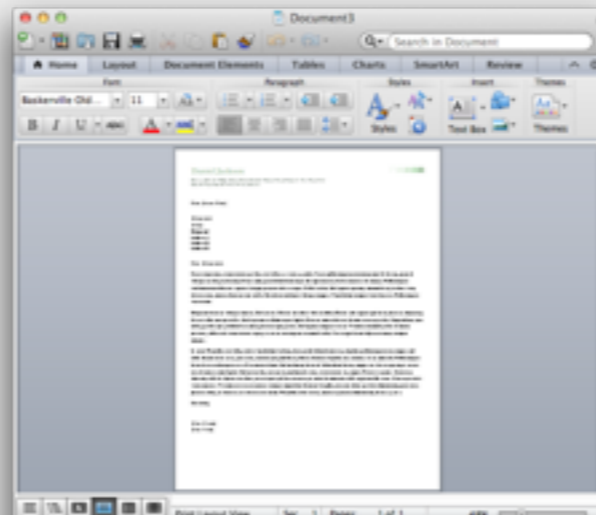


what's software built from?

Apple Mail



Microsoft Word



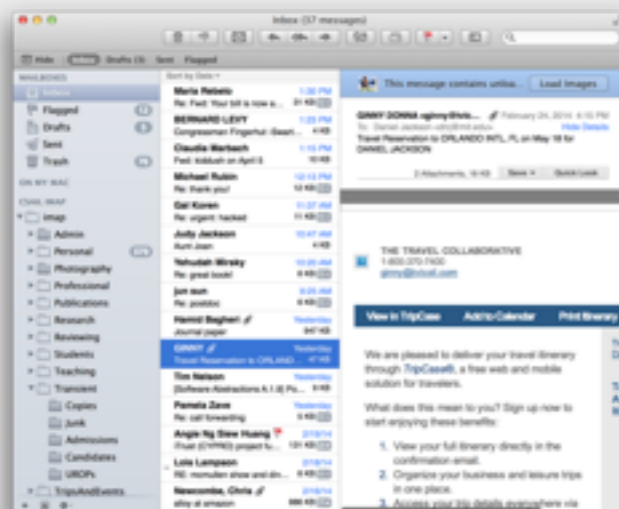
Twitter



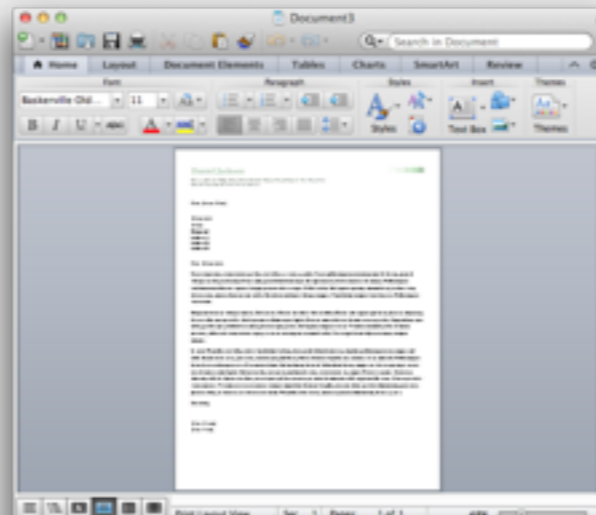
what's software built from?

concepts!

Apple Mail



Microsoft Word



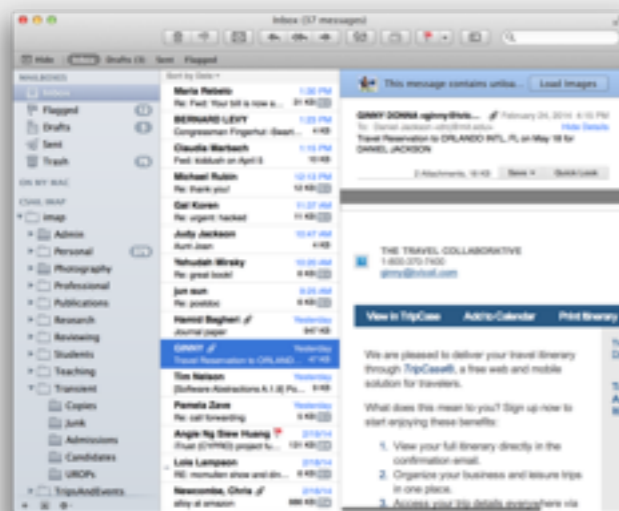
Twitter



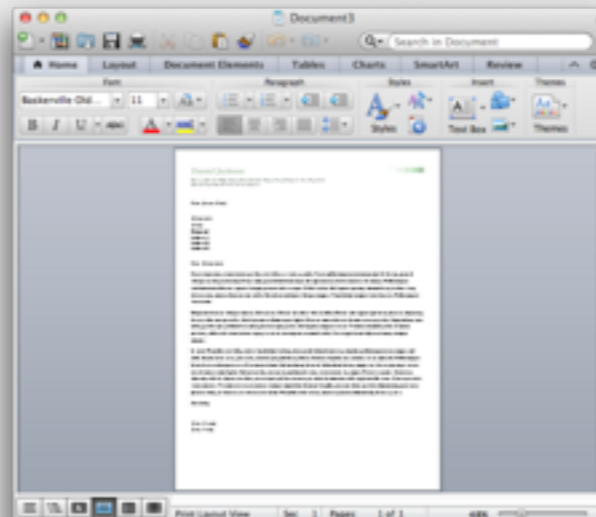
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concepts!

Apple Mail



Microsoft Word



Twitter



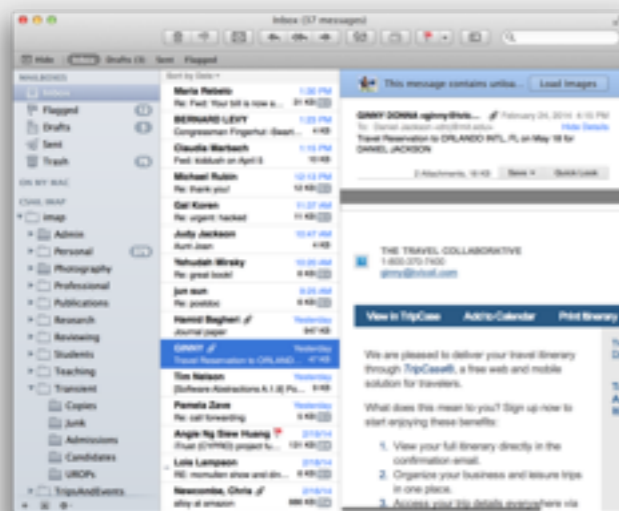
account
message
folder
conversation

...

what's software built from?

concepts!

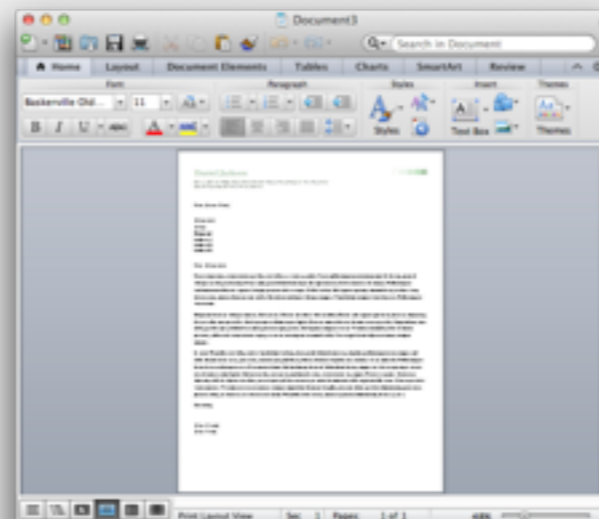
Apple Mail



account
message
folder
conversation

...

Microsoft Word



document
paragraph
style
stylesheet

...

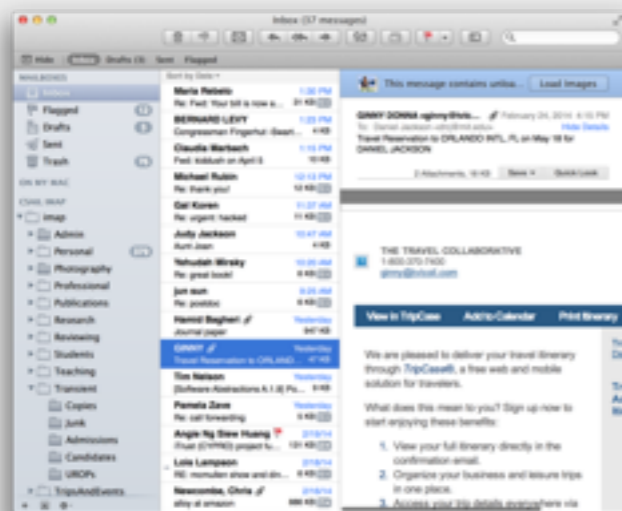
Twitter



what's software built from?

concepts!

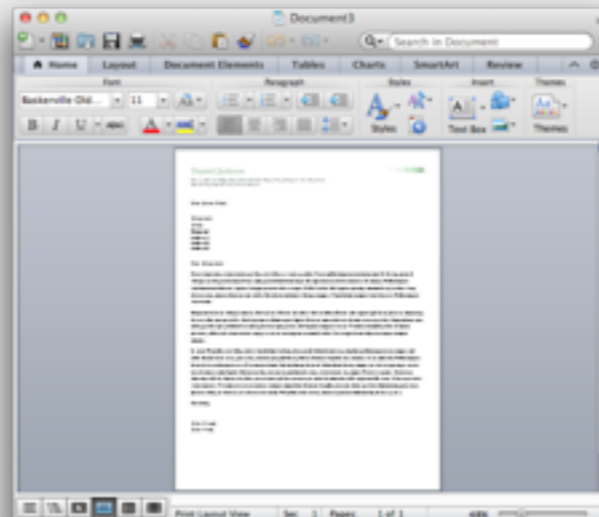
Apple Mail



account
message
folder
conversation

...

Microsoft Word



document
paragraph
style
stylesheet

...

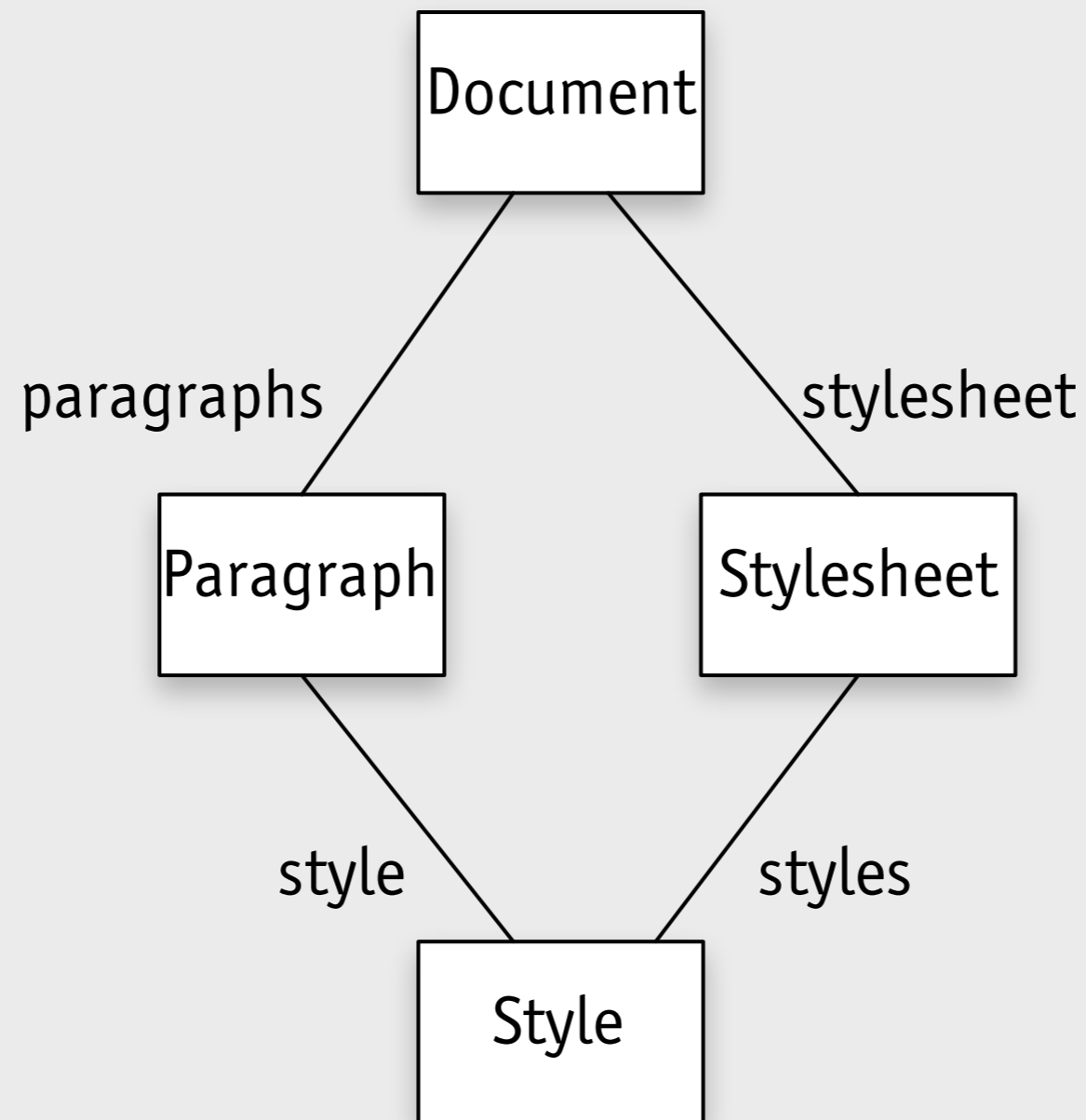
Twitter



user
tweet
hashtag
follower

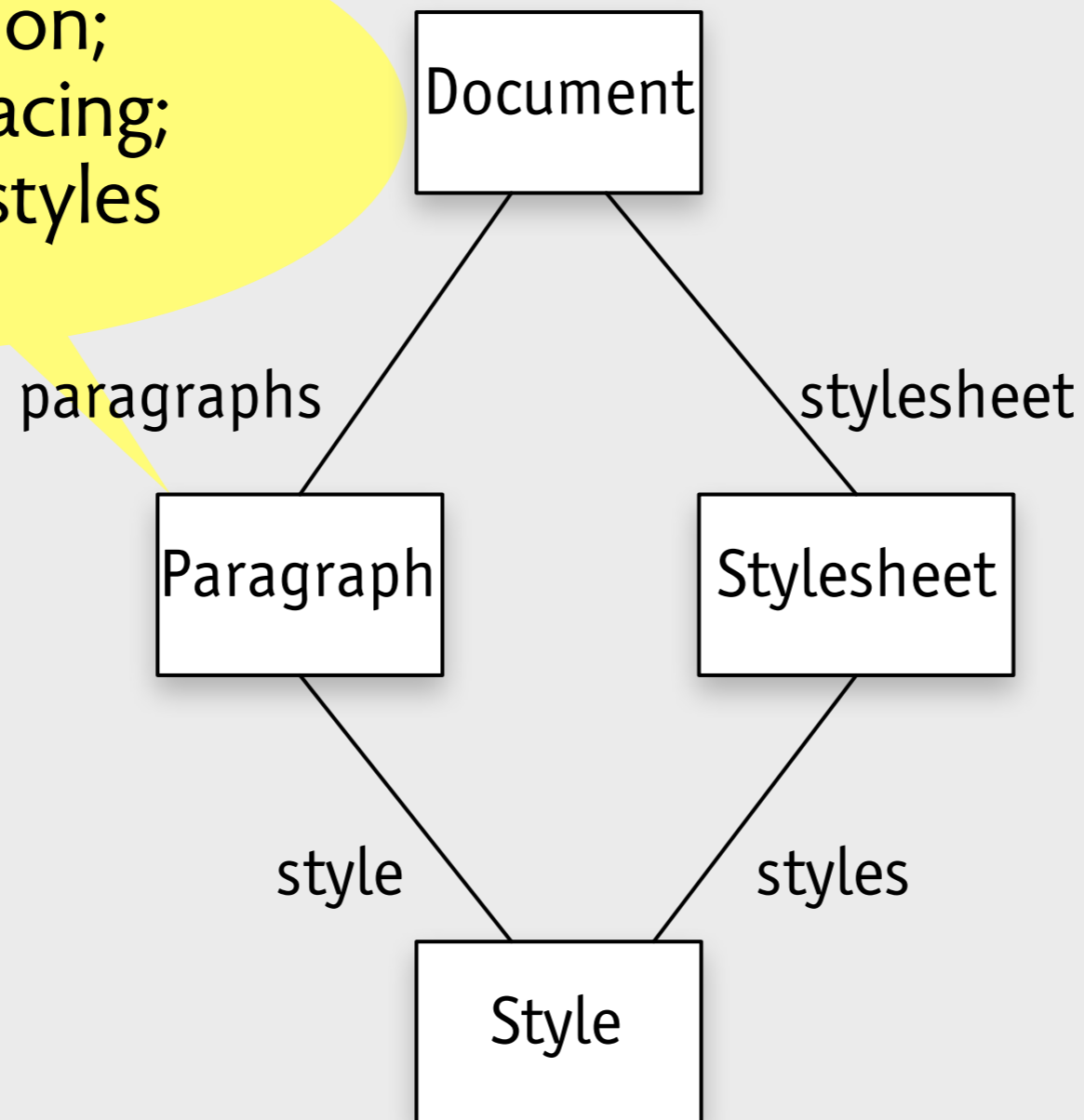
...

a concept map for Word



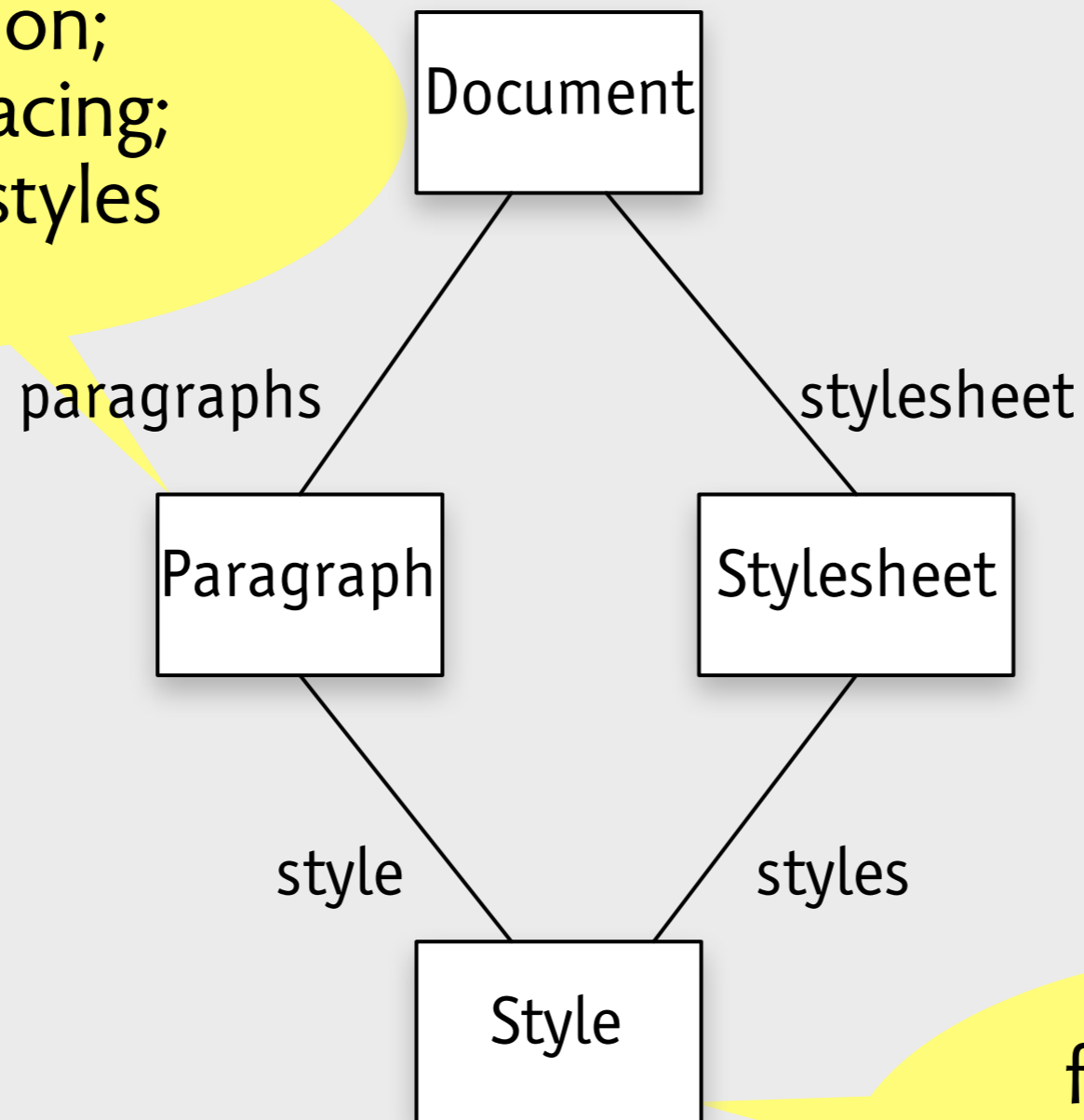
a concept map for Word

for justification;
for vertical spacing;
for attaching styles



a concept map for Word

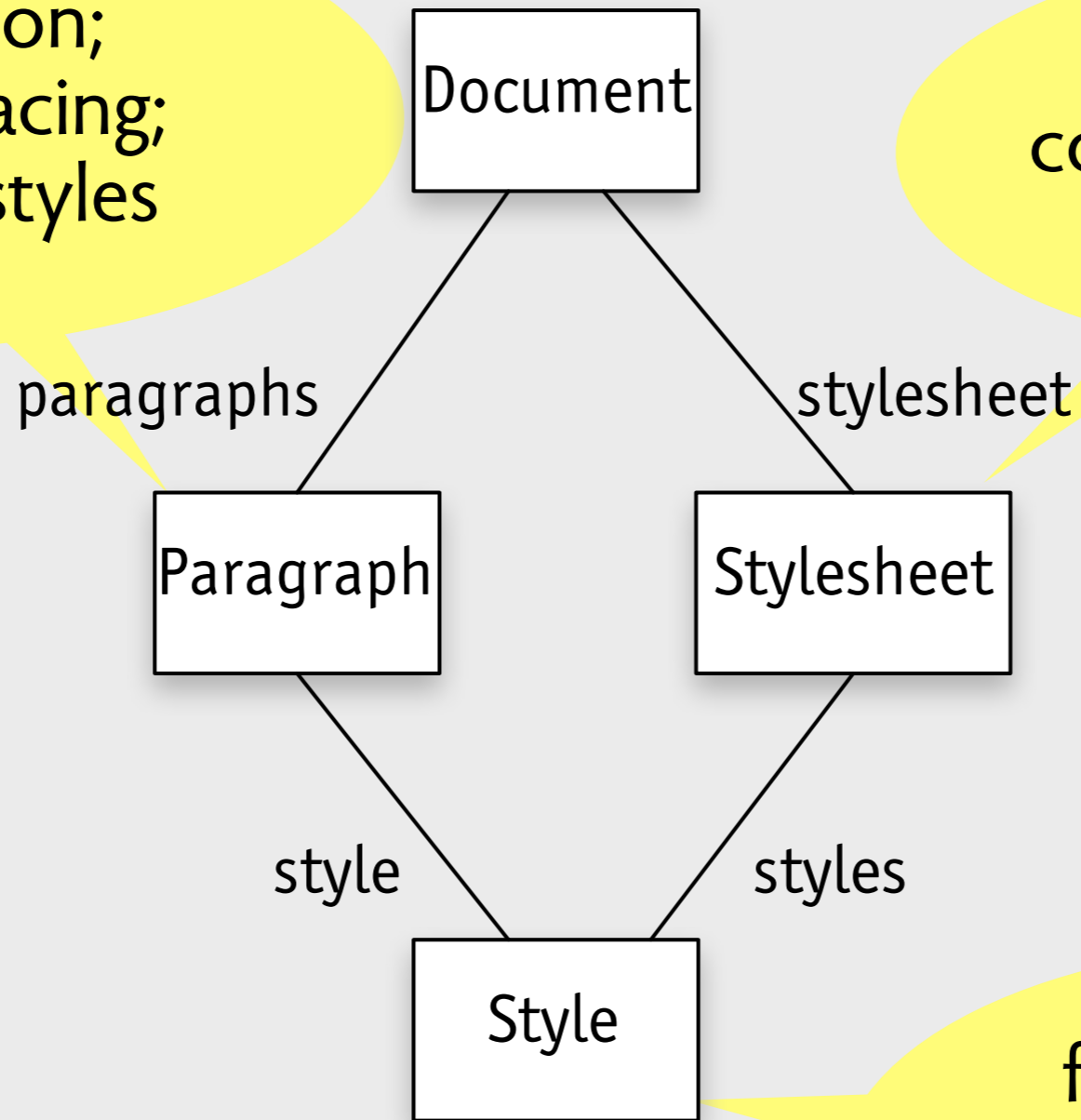
for justification;
for vertical spacing;
for attaching styles



for maintaining
consistent formatting
within document

a concept map for Word

for justification;
for vertical spacing;
for attaching styles



for maintaining
consistent formatting
across documents

for maintaining
consistent formatting
within document

where do concepts come from?

natural

artificial



where do concepts come from?

natural

artificial

paragraph
section
chapter

where do concepts come from?

natural

artificial

paragraph

section

chapter

message

where do concepts come from?

natural

artificial

paragraph

section

chapter

message

shopping
cart

where do concepts come from?

natural

artificial

paragraph

section

chapter

message

shopping
cart

friend

follower

profile

where do concepts come from?

natural

artificial

paragraph

section

chapter

message

style

layer

shopping
cart

friend

follower

profile

where do concepts come from?

natural

artificial

paragraph

section

chapter

message

style

layer

trash can

shopping
cart

friend

follower

profile

where do concepts come from?

natural

artificial

paragraph

section

chapter

message

style

layer

trash can

directory

shopping
cart

friend

follower

profile

where do concepts come from?

natural

artificial

paragraph

section

chapter

message

style

layer

trash can

directory

RMA

shopping
cart

friend

follower

profile

where do concepts come from?

natural

artificial

paragraph

section

chapter

message

style

layer

trash can

directory

RMA

relative reference

PKI certificate

shopping
cart

friend

follower

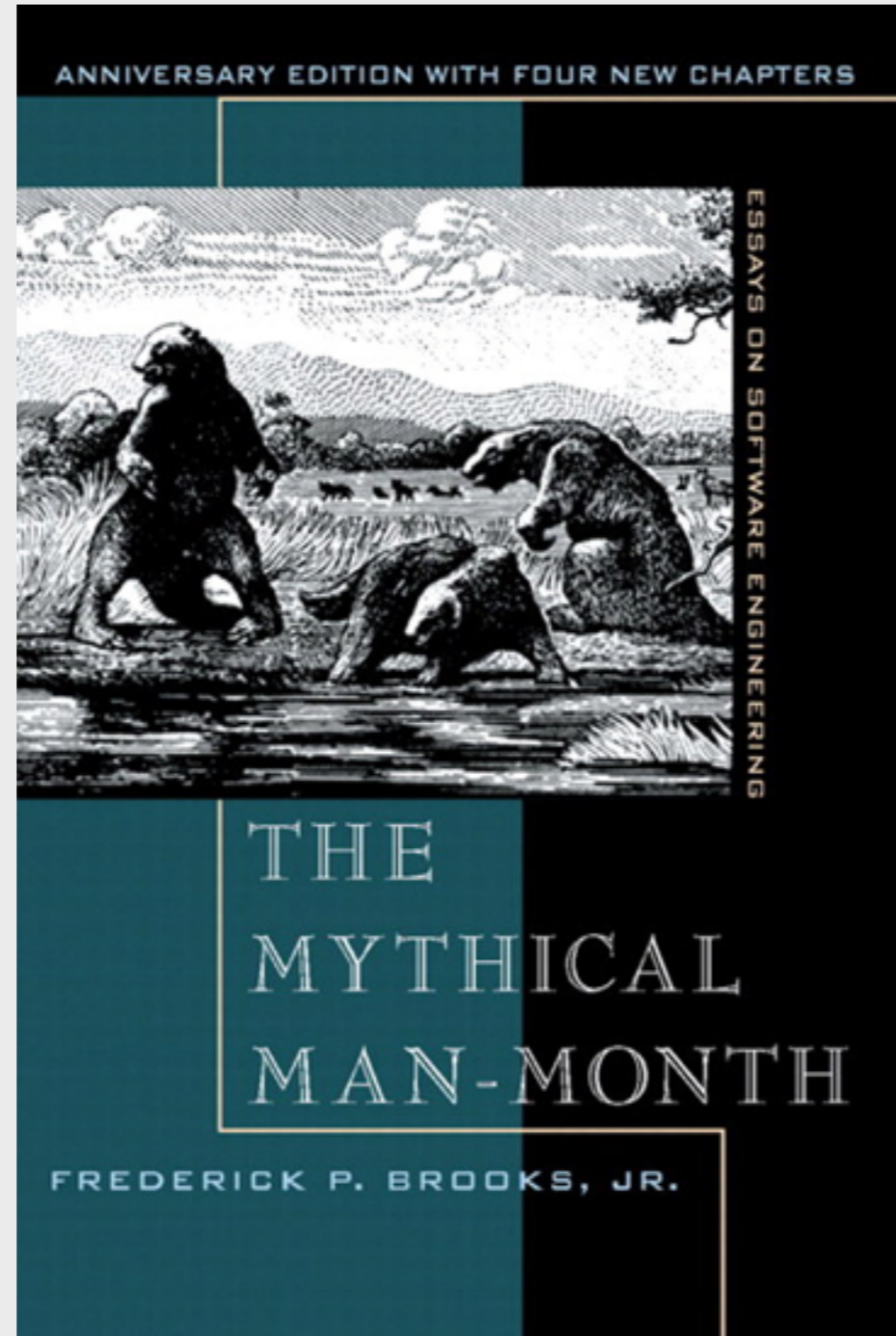
profile

where Word's concepts came from



Charles Simonyi: brought key concepts to Word from Xerox PARC

fred brooks: “mythical man month”





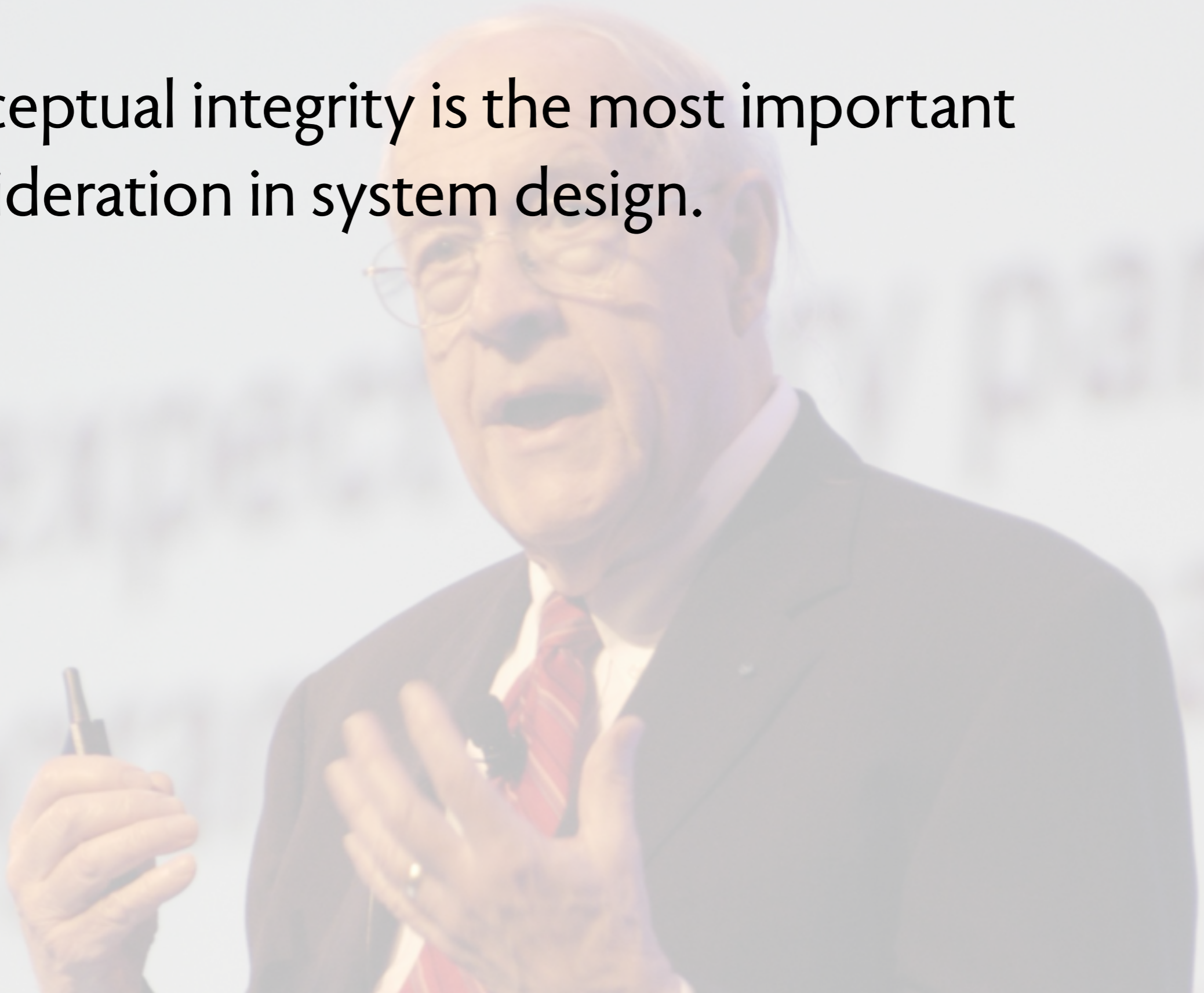
fred brooks on conceptual integrity



fred brooks on conceptual integrity

Conceptual integrity is the most important consideration in system design.

—1975



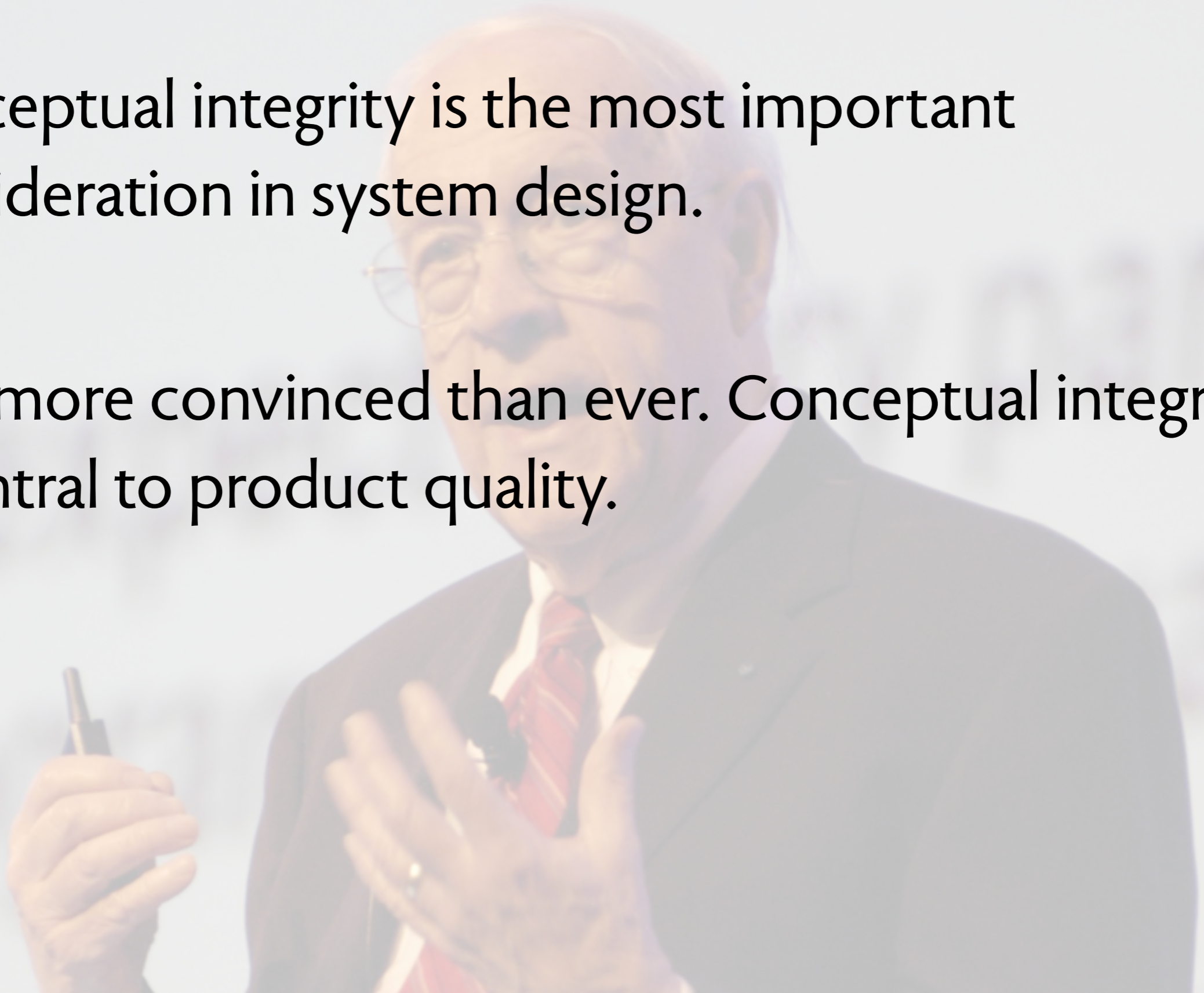
fred brooks on conceptual integrity

Conceptual integrity is the most important consideration in system design.

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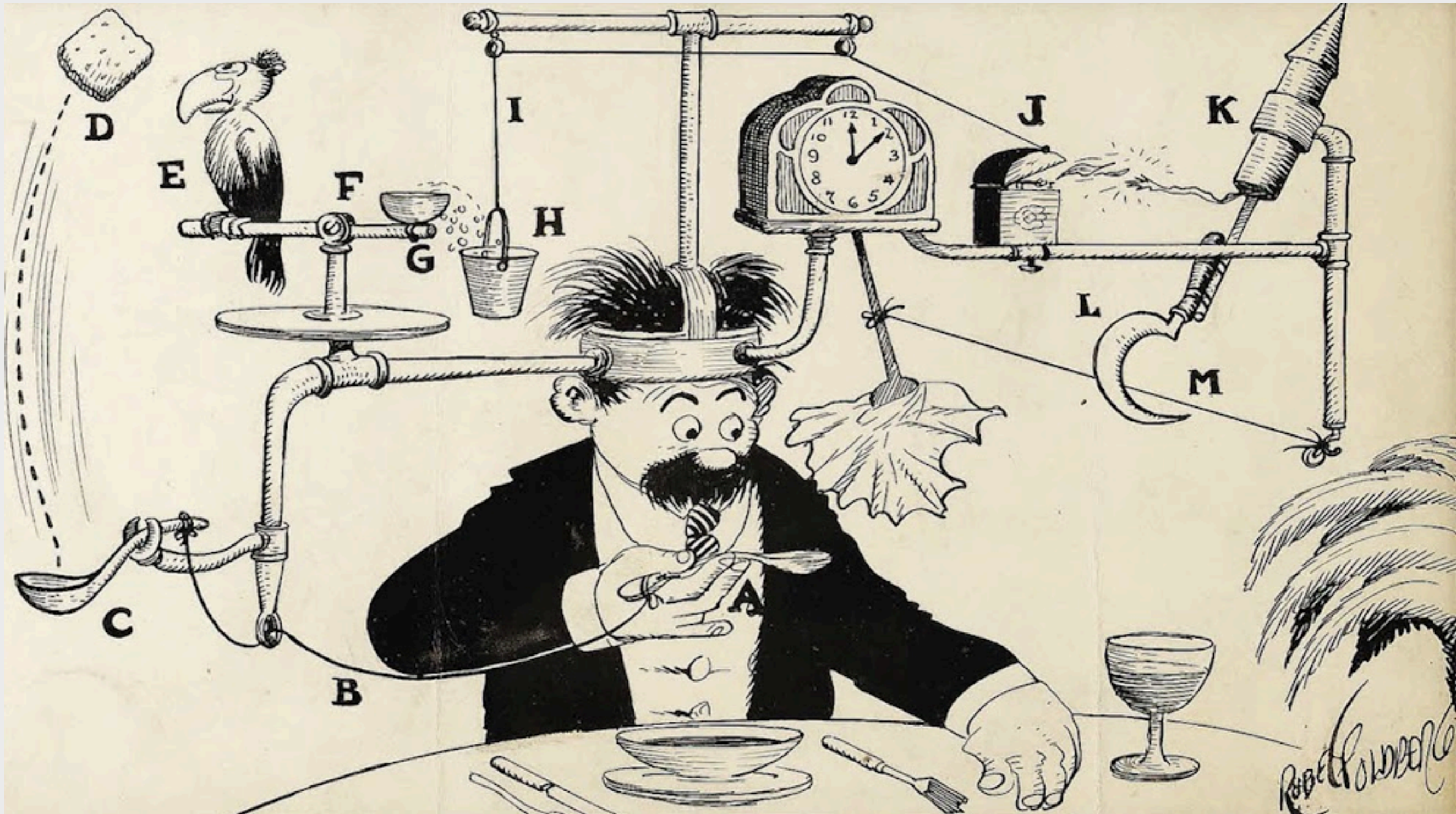
I am more convinced than ever. Conceptual integrity is central to product quality.

—1995



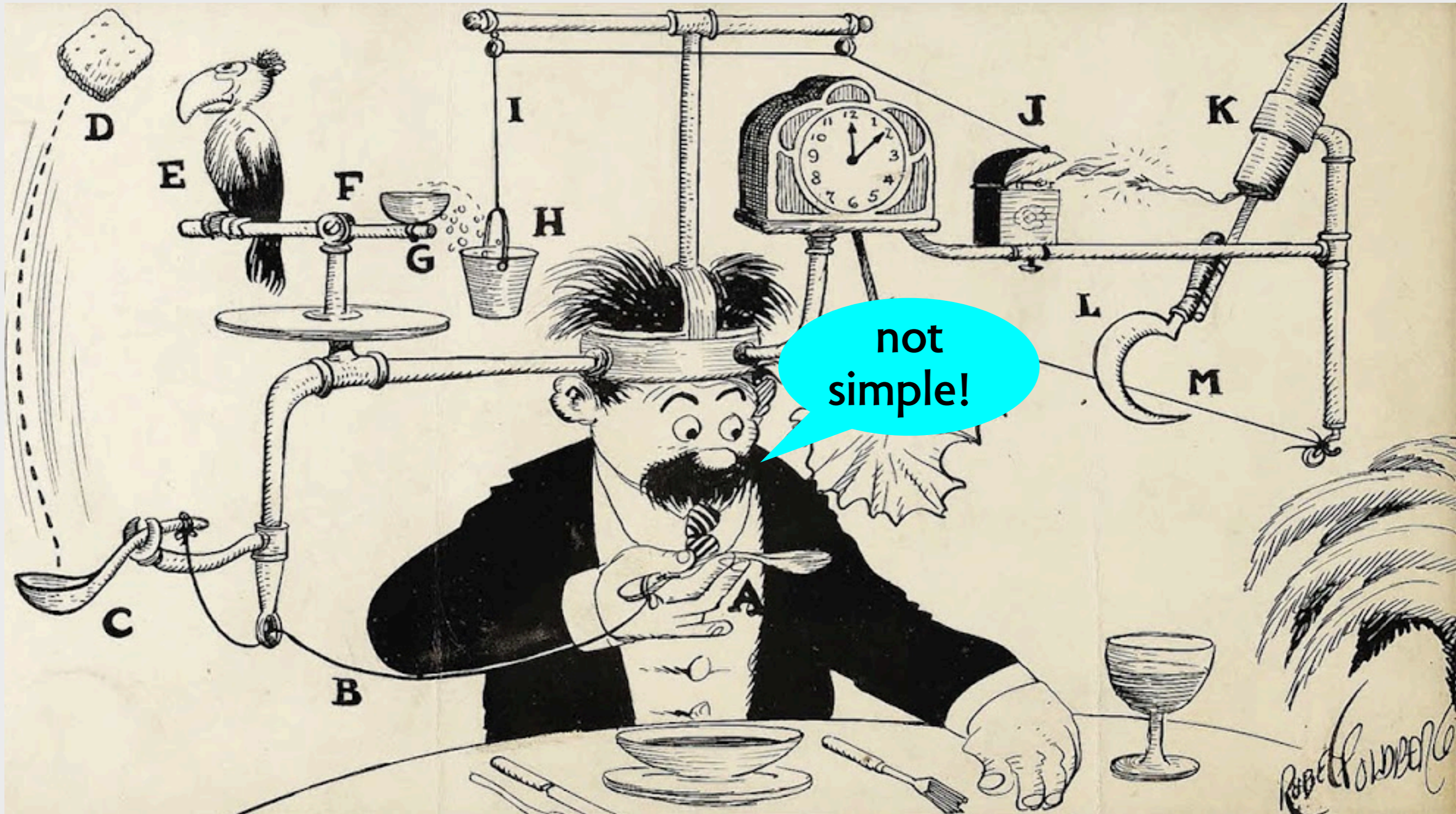
criteria for concepts

simple



Professor Butts and the Self-Operating Napkin (Rube Goldberg)

simple



not
simple!

Professor Butts and the Self-Operating Napkin (Rube Goldberg)

coherent



Kenwood "radio toaster"

coherent



Kenwood "radio toaster"

complete



Bay Bridge, CA in 1989 after Loma Prieta earthquake

complete



Bay Bridge, CA in 1989 after Loma Prieta earthquake

usable

usable



usable



usable



usable

not
usable!



a short tour
of the
confusing,
dangerous,
inadequate
& broken

the confusing

love & hate

love & hate



LR Adobe Photoshop Lightroom is a photography software program developed by Adobe Systems for Mac OS X and Microsoft Windows, designed ... [»](#)

89% Love Lightroom



 **Tweet**  3

 **+1** 

2,335 Positive Opinions out of 2,632

love & hate

 Adobe Photoshop Lightroom is a photography software program developed by Adobe Systems for Mac OS X and Microsoft Windows, designed ... [»](#)

89% Love Lightroom



 **Tweet**   **+1** 

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 Adobe Photoshop Lightroom is a photography software program developed by Adobe Systems for Mac OS X and Microsoft Windows, designed ... [»](#)

11% Hate Lightroom



 **Tweet**   **+1** 

297 **Negative Opinions** out of 2,632

love & hate

 Adobe Photoshop Lightroom is a photography software program developed by Adobe Systems for Mac OS X and Microsoft Windows, designed ... [»](#)

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 Tweet 3  +1 +

2,335 Positive Opinions out of 2,632

 Adobe Acrobat is a family of computer programs developed by Adobe Systems, designed to view, create, manipulate and manage files ... [»](#)

47% Love Acrobat



 Tweet 1  +1 +

207 Positive Opinions out of 444

 Adobe Photoshop Lightroom is a photography software program developed by Adobe Systems for Mac OS X and Microsoft Windows, designed ... [»](#)

11% Hate Lightroom



 Tweet 5  +1 +

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love & hate

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53% Hate Acrobat



 Tweet 15  +1 

237 Negative Opinions out of 444

love & hate

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89% Love Lightroom



 Tweet 3  +1 +

2,335 Positive Opinions out of 2,632

 Adobe Photoshop is a graphics editing program developed and published by Adobe Systems Incorporated.

70% Love Photoshop



 Tweet 87  +1 +

30,305 Positive Opinions out of 43,283

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 Tweet 1  +1 +

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 Tweet 15  +1 +

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love & hate

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 Tweet 1  +1 +

207 Positive Opinions out of 444

 Adobe Photoshop Lightroom is a photography software program developed by Adobe Systems for Mac OS X and Microsoft Windows, designed ... [»](#)

11% Hate Lightroom



 Tweet 5  +1 +

297 Negative Opinions out of 2,632

 Adobe Photoshop is a graphics editing program developed and published by Adobe Systems Incorporated.

30% Hate Photoshop



 Tweet 105  +1 +

12,978 Negative Opinions out of 43,283

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53% Hate Acrobat

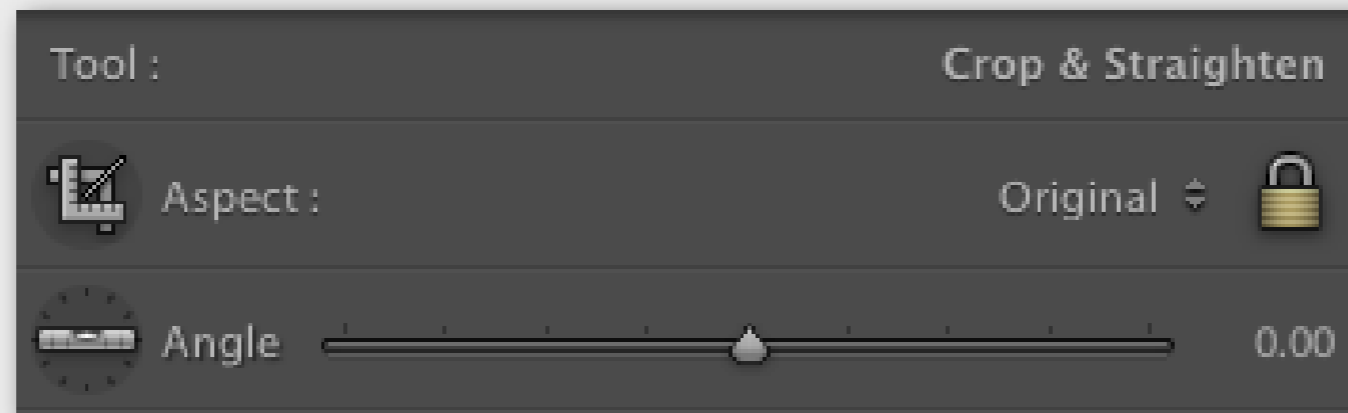


 Tweet 15  +1 +

237 Negative Opinions out of 444

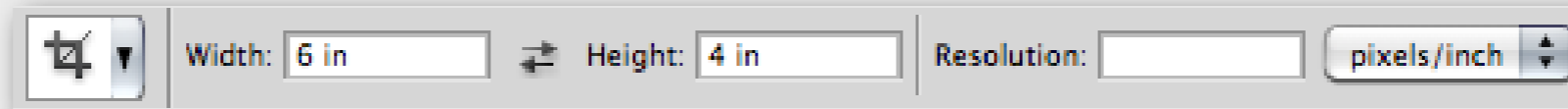
cropping in adobe lightroom

cropping in adobe lightroom

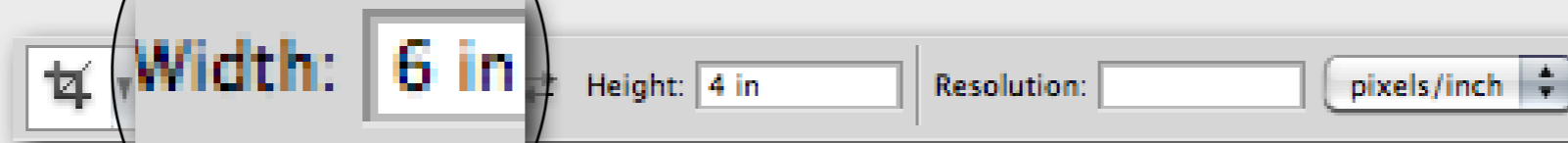


cropping in adobe photoshop

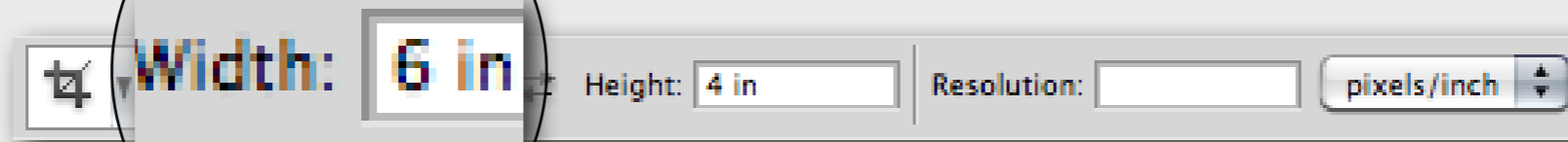
cropping in adobe photoshop



cropping in adobe photoshop

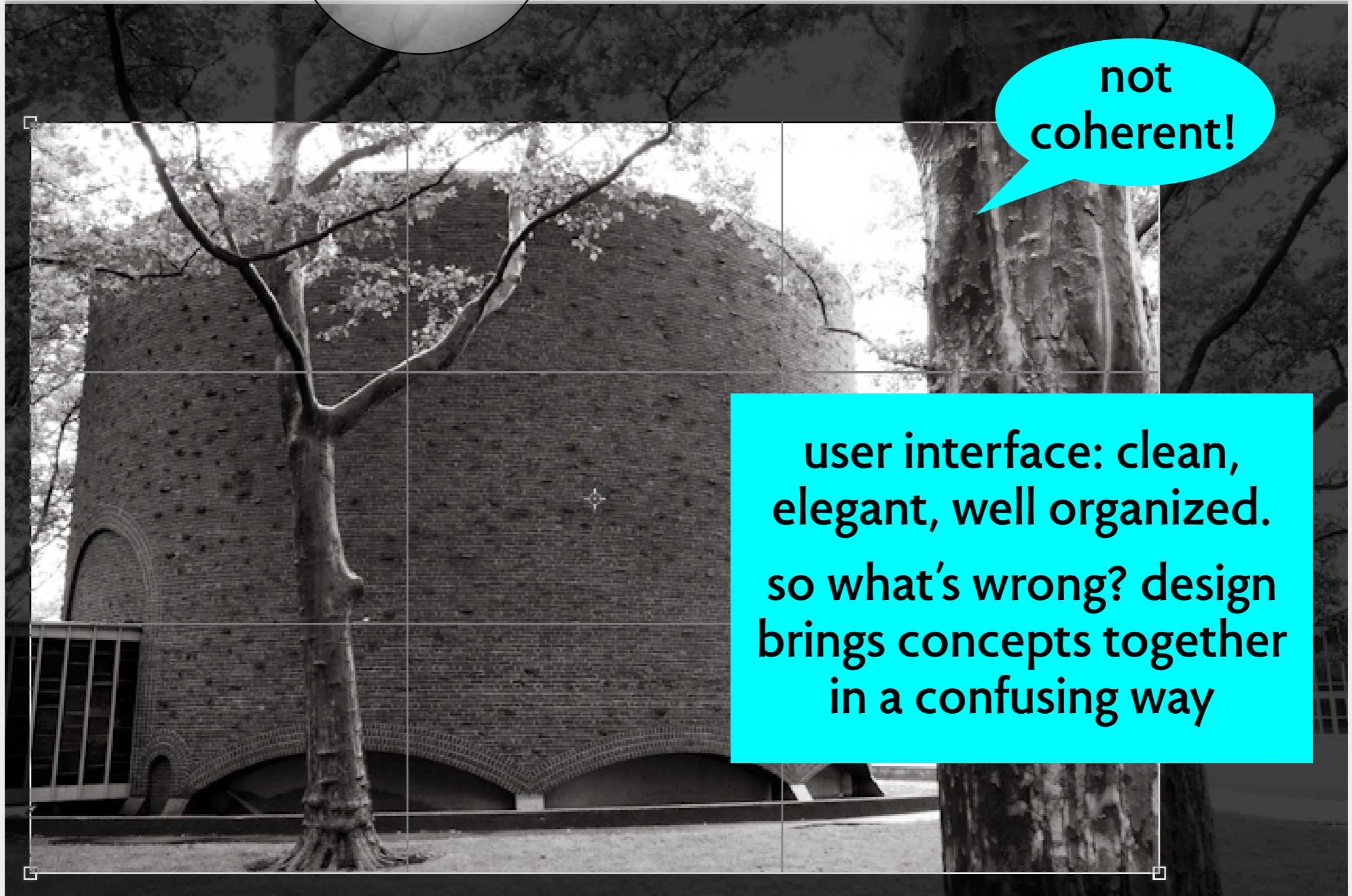
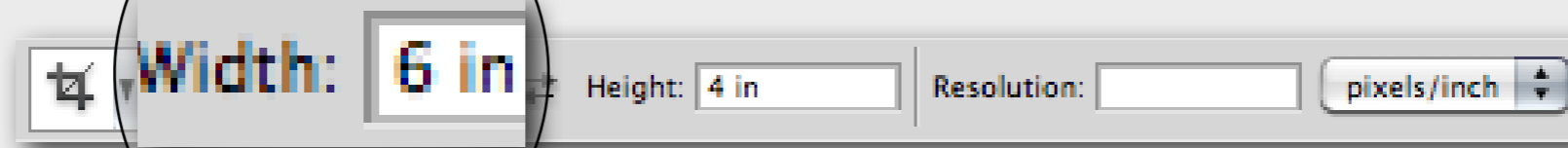


cropping in adobe photoshop



not
coherent!

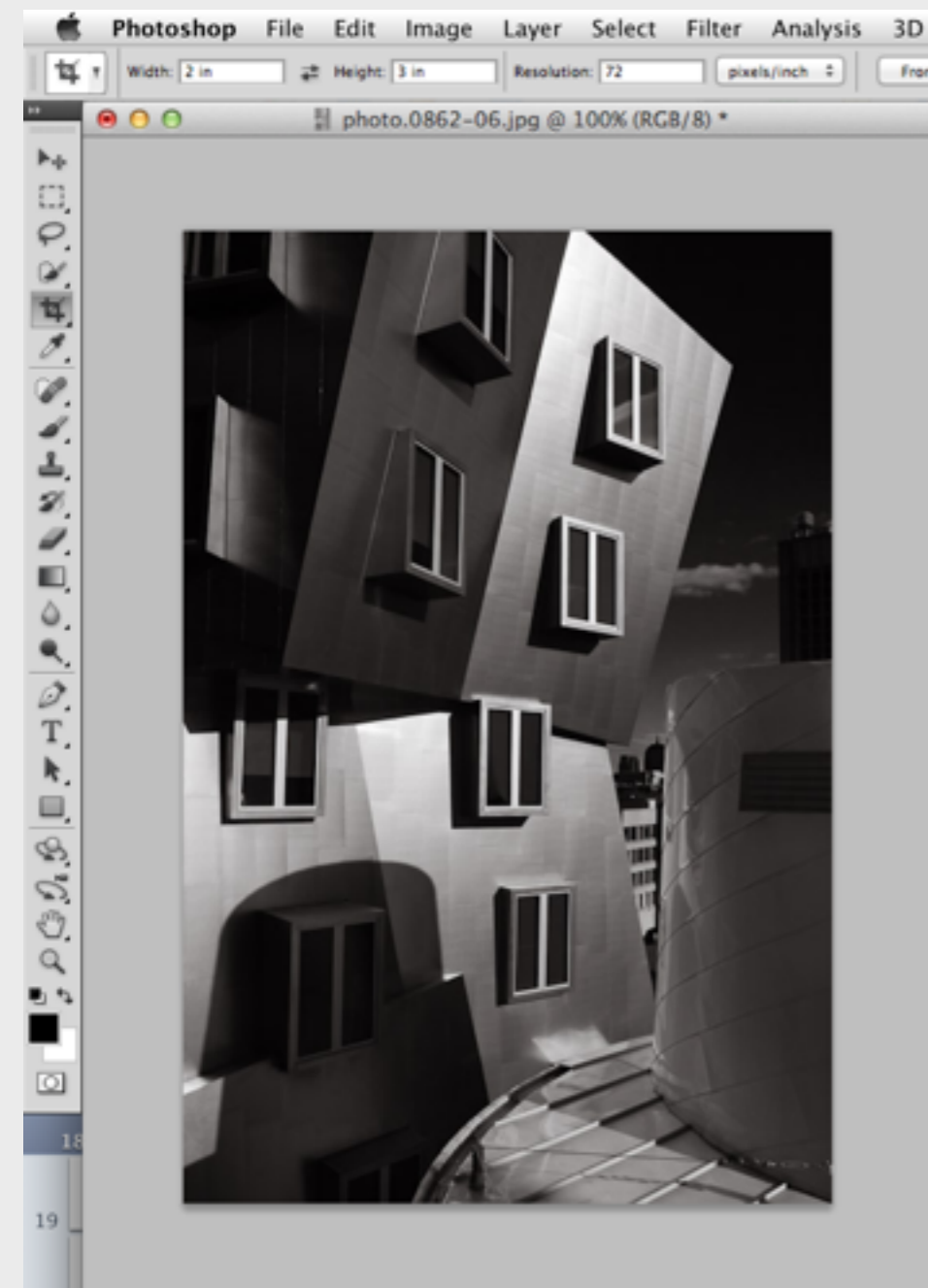
cropping in adobe photoshop



not
coherent!

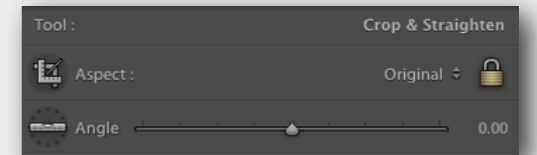
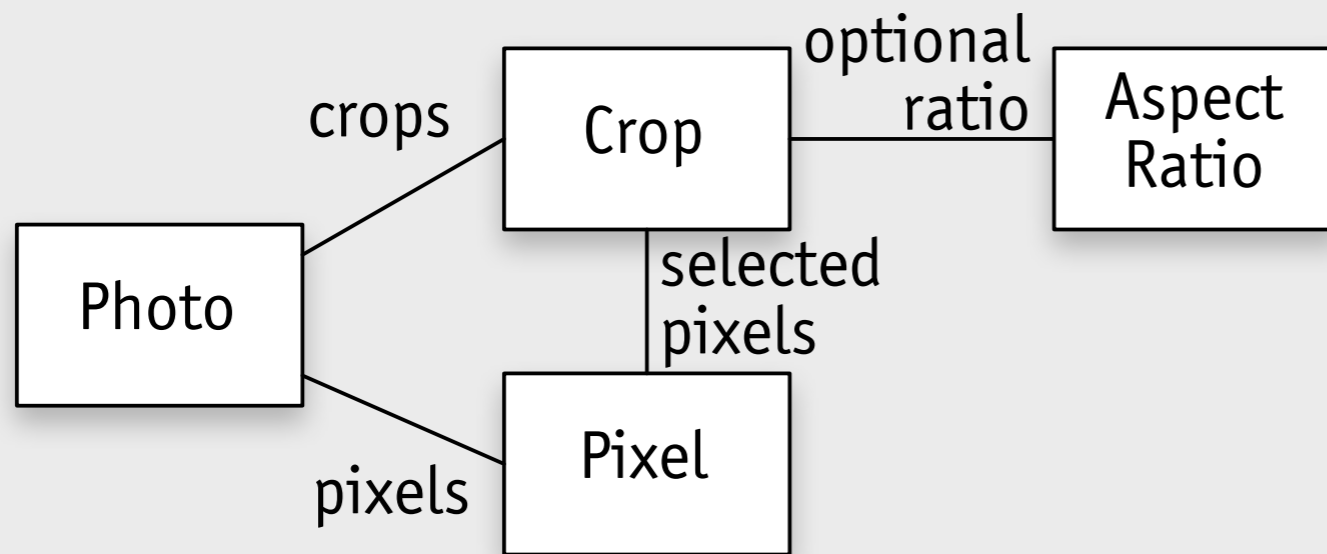
user interface: clean,
elegant, well organized.
so what's wrong? design
brings concepts together
in a confusing way

cropping the whole image



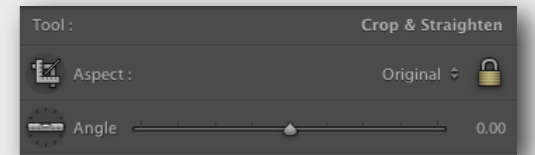
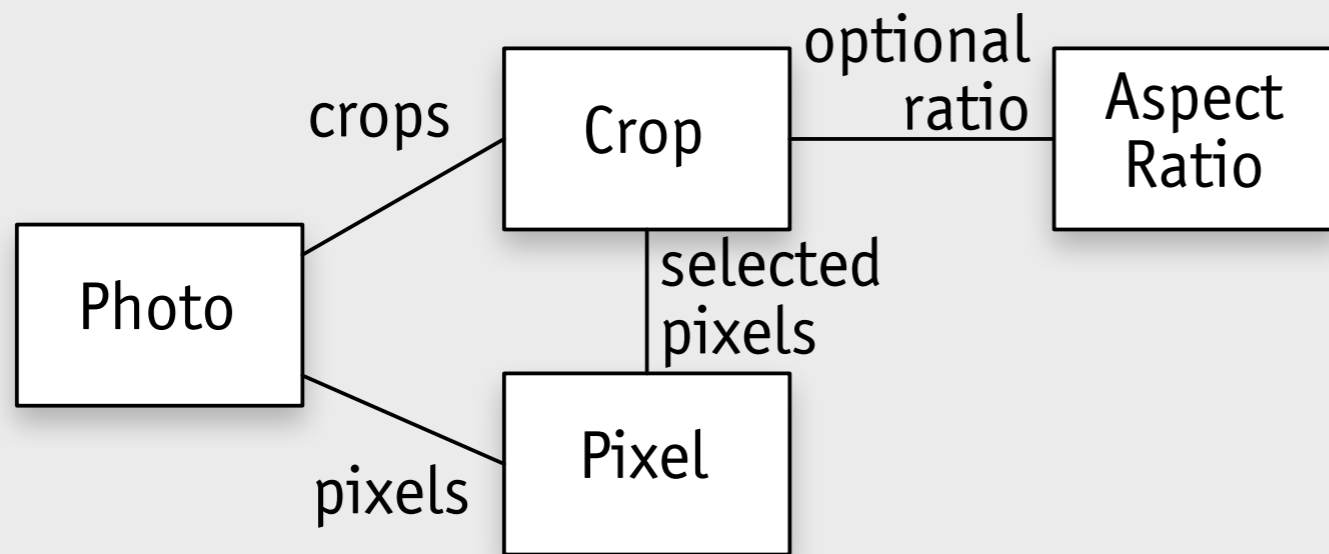
concept maps of cropping

concept maps of cropping

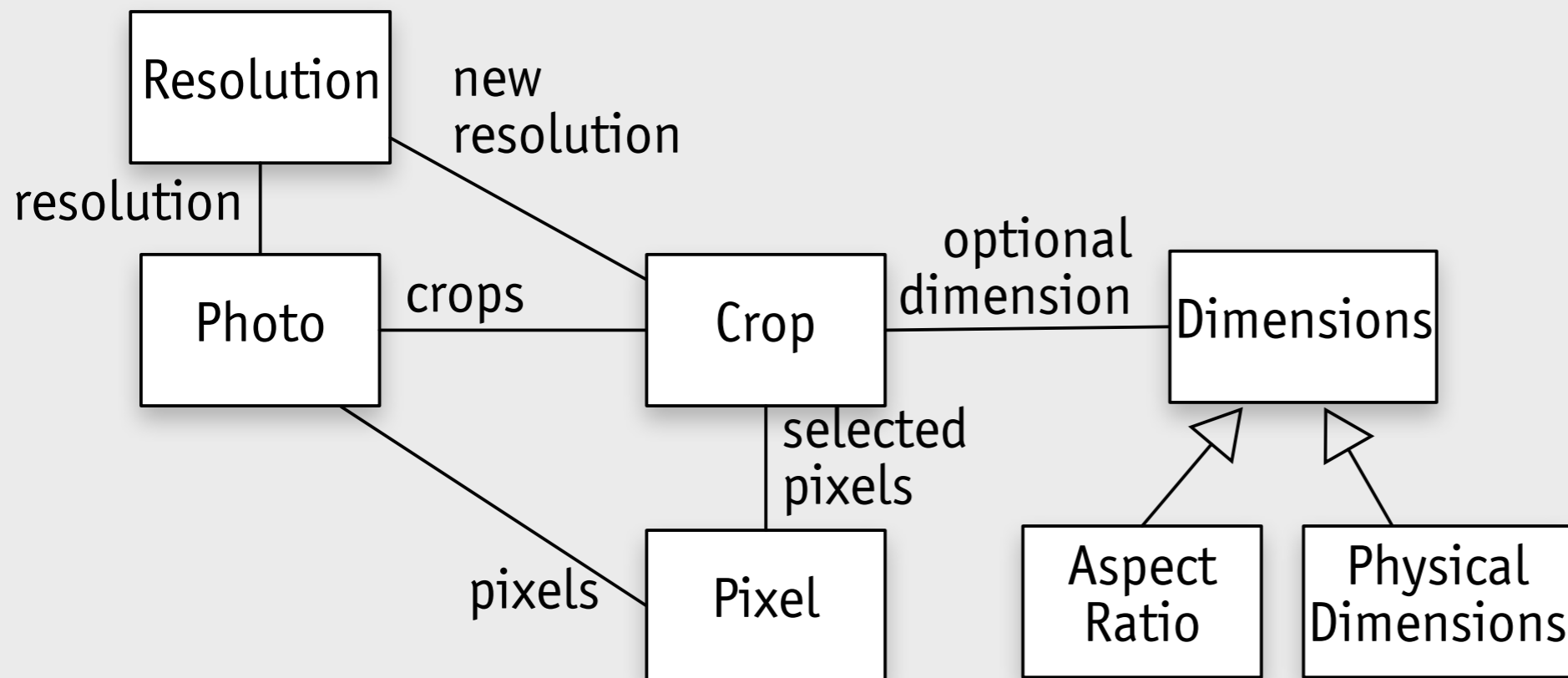


Lightroom

concept maps of cropping

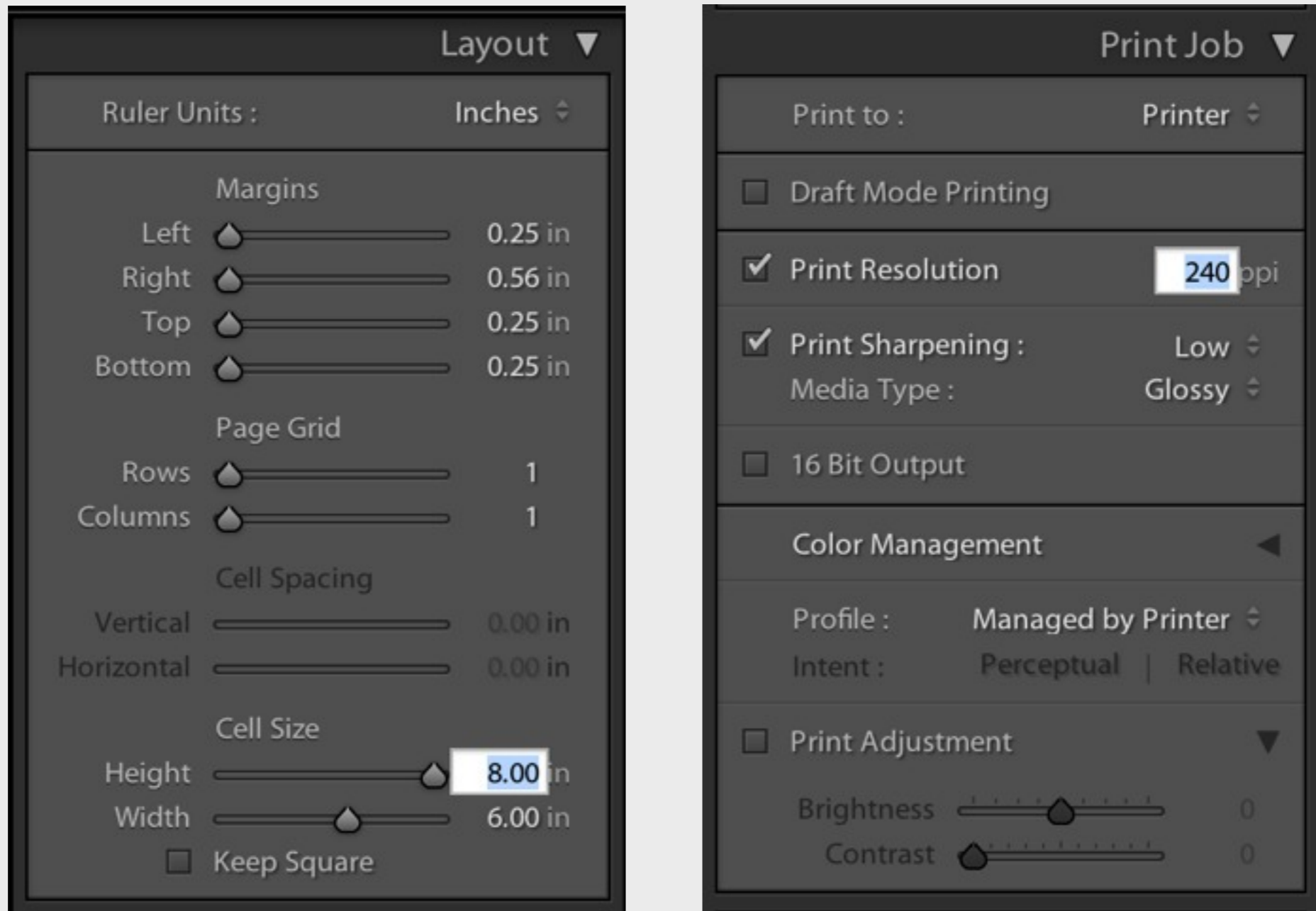


Lightroom



Photoshop

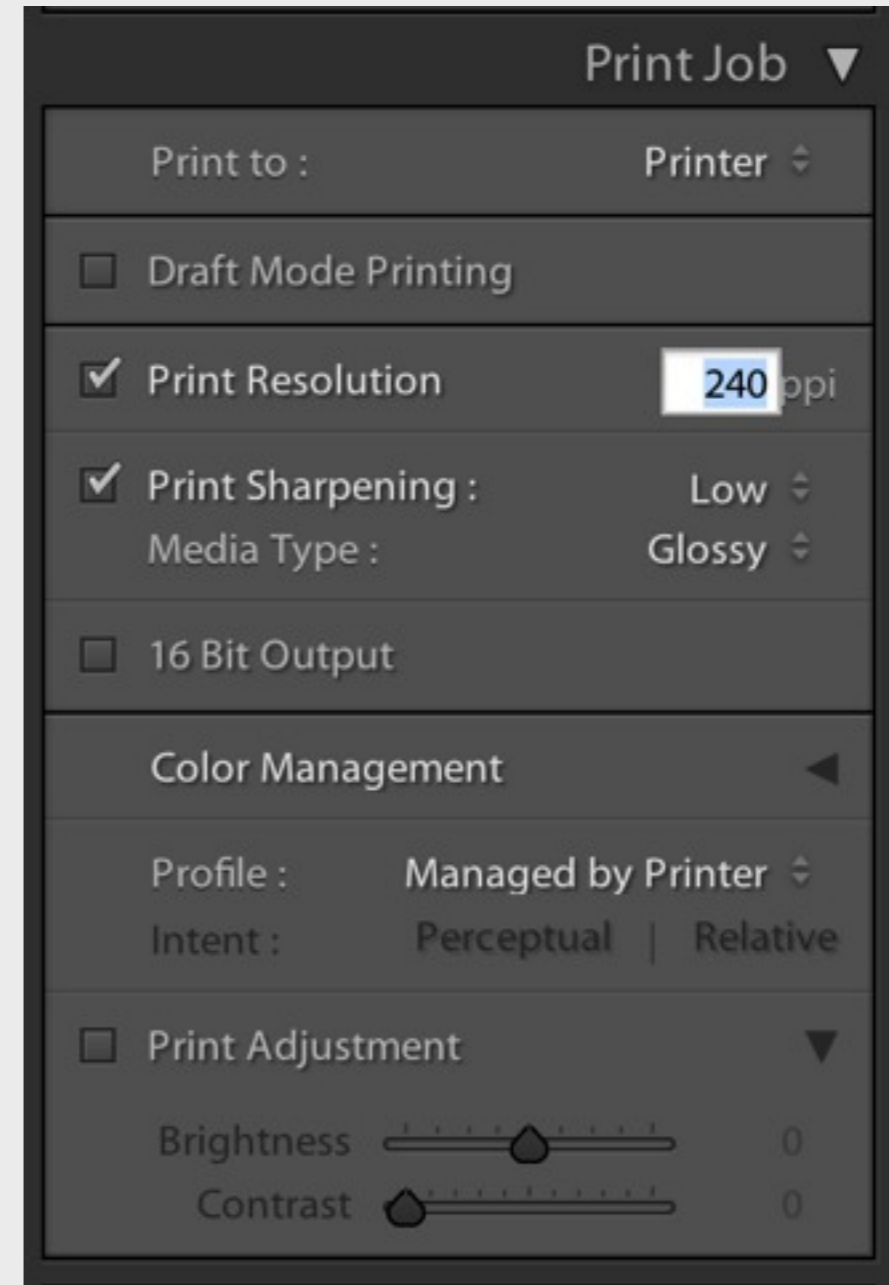
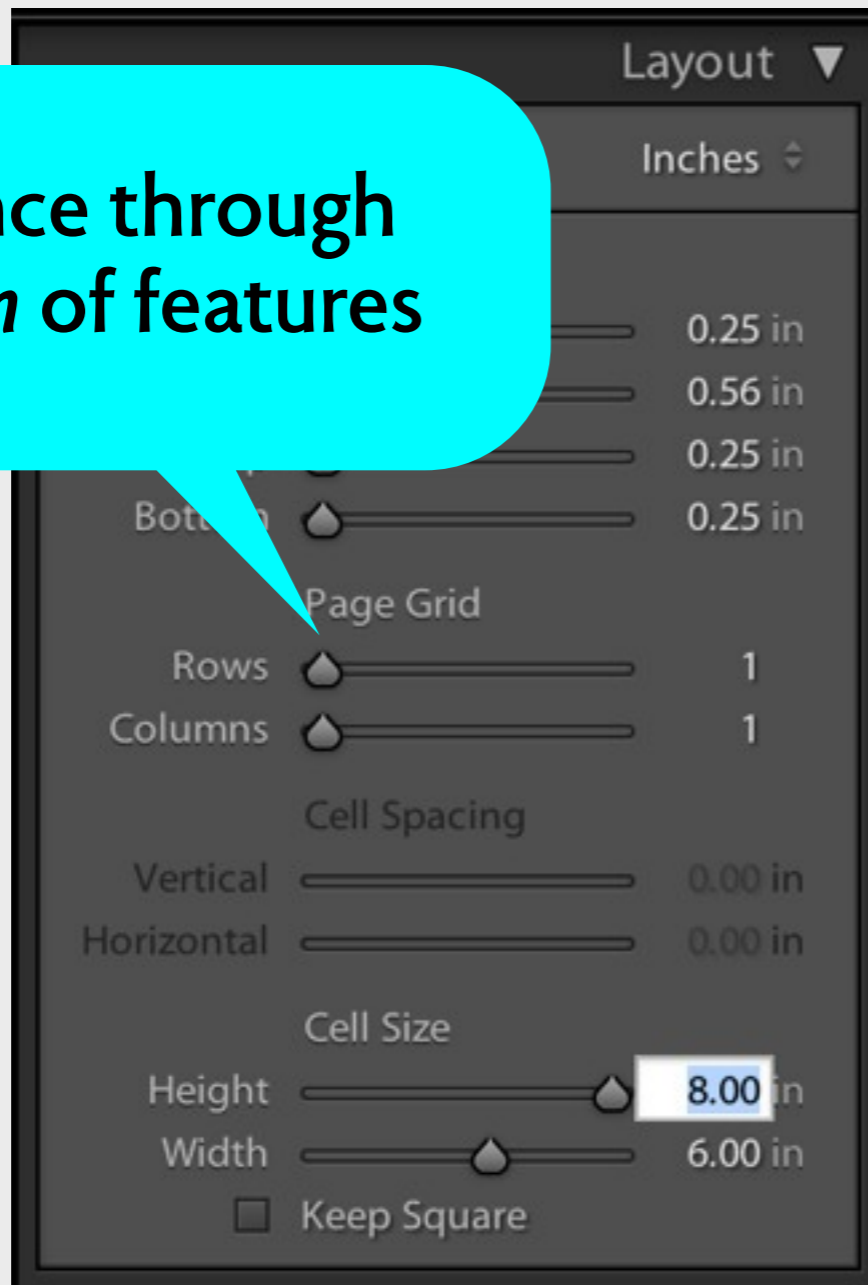
where did resolution go?



Lightroom printing module

where did resolution go?

coherence through
separation of features




Lightroom printing module

subversion

```
% cat > readme.txt
hello. this is a new file.
% svn add readme.txt
A          readme.txt
% cat >> readme.txt
adding another line.
% svn commit -m "new readme file"
Password:
Adding          readme.txt
Transmitting file data .
Committed revision 15493.
```

git

 **git** --fast-version-control

Git is a **free and open source** distributed version control system designed to handle everything from small to very large projects with speed and efficiency.

Git is **easy to learn** and has a **tiny footprint with lightning fast performance**. It outclasses SCM tools like Subversion, CVS, Perforce, and ClearCase with features like **cheap local branching**, convenient **staging areas**, and **multiple workflows**.



 **Learn Git in your browser for free with [Try Git](#).**

git

```
% cat > readme.txt
hello. this is a new file.
% git add readme.txt
% cat >> readme.txt
adding another line.
% git commit -m "new readme file"
[master b455dc7] new readme file
 1 file changed, 1 insertion(+)
 create mode 100644 2014/inclass/readme.txt
```

```
% git status
# On branch master
# Changes not staged for commit:
#   (use "git add <file>..." to update what will be committed)
#   (use "git checkout -- <file>..." to discard changes in working directory)
#
#       modified:   readme.txt
#
no changes added to commit (use "git add" and/or "git commit")
```

git

```
% cat > readme.txt
hello. this is a new file.
% git add readme.txt
% cat >> readme.txt
adding another line.
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```

changes were
not saved in
repository!

```
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git

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[master b455dc7] new readme file
1 file changed, 1 insertion(+)
create mode 100644 2014/inclass/readme.txt
```

not simple: too many concepts

changes were not saved in repository!

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% git status
# On branch master
# Changes not staged for commit:
#   (use "git add <file>..." to update what will be committed)
#   (use "git checkout -- <file>..." to discard changes in working directory)
#
#       modified:   readme.txt
#
no changes added to commit (use "git add" and/or "git commit")
```

that git feeling

that git feeling

Tracking New Files

In order to begin tracking a new file, you use the command `git add`. To begin tracking the `README` file, you can run this:

```
$ git add README
```

that git feeling

Tracking New Files

In order to begin tracking a new file, you use the command `git add`. To begin tracking the `README` file, you can run this:

```
$ git add README
```

If you run your status command again, you can see that your `README` file is now tracked and staged:

```
$ git status
On branch master
Changes to be committed:
  (use "git reset HEAD <file>..." to unstage)

    new file:   README
```

Staging Modified Files

Let's change a file that was already tracked. If you change a previously tracked file called `benchmarks.rb` and then run your `status` command again, you get something that looks like this:

```
$ git status
On branch master
Changes to be committed:
  (use "git reset HEAD <file>..." to unstage)

        new file:   README

Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git checkout -- <file>..." to discard changes in working directory)

        modified:   benchmarks.rb
```

The `benchmarks.rb` file appears under a section named “Changes not staged for commit”, which means that a file that is tracked has been modified in the working directory but not yet staged. To stage it, you run the `git add` command (it's a multipurpose command — you use it to begin tracking new files, to stage files, and to do other things like marking merge-conflicted files as resolved). Let's run `git add` now to stage the `benchmarks.rb` file, and then run `git status` again:

Staging Modified Files

Let's change a file that was already tracked. If you change a previously tracked file called `benchmarks.rb` and then run your `status` command again, you get something that looks like this:

```
$ git status
On branch master
Changes to be committed:
  (use "git reset HEAD <file>..." to unstage)

        new file:   README

Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git checkout -- <file>..." to discard changes in working directory)

        modified:   benchmarks.rb
```

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hoare on simplicity



hoare on simplicity



Almost anything in software can be implemented, sold, and even used given enough determination... But there is one quality that cannot be purchased in this way—and that is reliability. **The price of reliability is the pursuit of the utmost simplicity. It is a price which the very rich find most hard to pay.**

gitless: our reworking of git

[about & download](#)

[documentation](#)

[community](#)

[code](#)

Gitless: a version control system

About Gitless

Gitless is an experimental version control system built on top of Git. We are exploring what conceptual integrity means with the goal of building a rigorous foundation for concept design. We encourage you to try out the current version of Gitless and [send feedback](#). Keep in mind that Gitless might change in non-retrocompatible ways (so don't script around it just yet) as we seek to answer the fundamental question that drives this software project: if we were to challenge the very core concepts in version control systems, what would version control look like?

In its current state, Gitless is a distributed version control system that supports all of the most commonly used Git features. We are missing some things like submodules and cherry-picking but these are coming soon (maybe; only if we don't find a superior, more robust way of achieving the same goal). Either way, since Gitless is implemented on top of Git (could be considered what Git pros call a 'porcelain' of Git) you can always fallback to the 'git' command to finish a task.

Install

You need to have Python 2.7 and Git 1.7.12+. The easiest way to install Gitless is through the Python Package Index (pip):

```
pip install gitless
```

For more detailed instructions see the [README file](#).

gitless at MIT: just google "gitless"

the dangerous

a common tale

Quora

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Dropbox: [Edit](#)

Someone accidentally deleted thousands of files in my company Dropbox: how can I quickly undelete them? [Edit](#)

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Friends don't let friends delete shared Dropbox items



Christopher Breen
@BodyofBreen

Sep 9, 2013 5:00 AM



Reader Paul Cramblett has a problem with others who just don't know how to share. He writes:

I maintain a Dropbox folder that I use to share files with a select group of friends. I've tried to explain how Dropbox works to these people but someone invariably drags all the files out of the folder, which means they're no longer available to the rest of us. Is there some way to prevent files from being removed by someone who doesn't understand the difference between "copy" and "move"?

how dropbox explains it



How do I leave a shared folder?

[« Back to Help Center](#)

You can leave a [shared folder](#) at any time by changing the folder's settings on the Dropbox website or deleting it. If you change your mind or leave a folder accidentally, you can [rejoin it](#) later.

how dropbox explains it



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by changing the folder's settings

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how dropbox explains it



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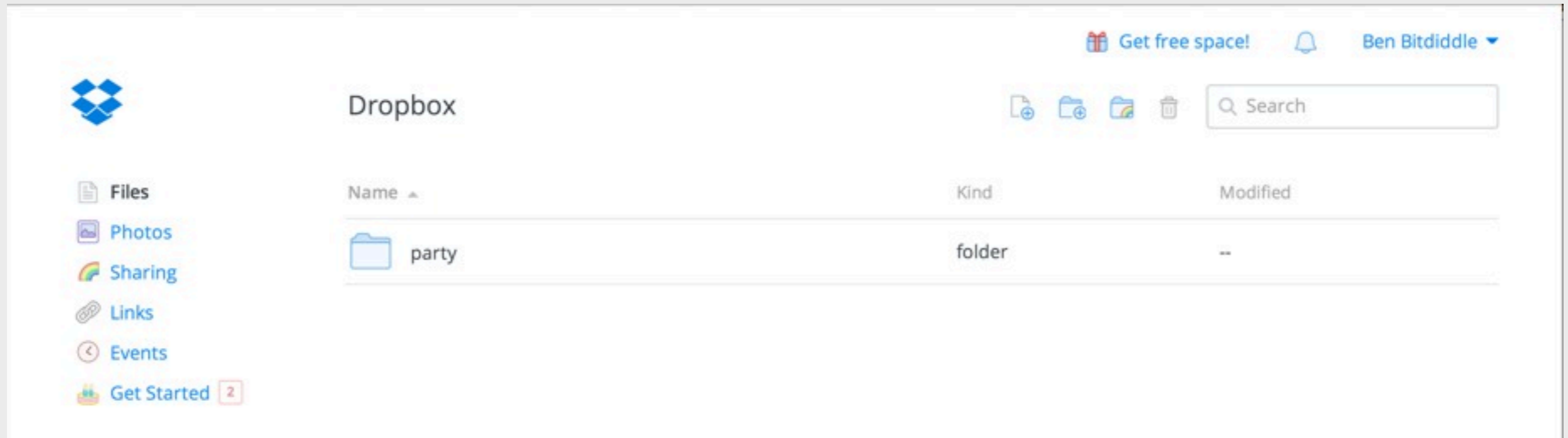
by changing the folder's settings

You can leave a [shared folder](#) at any time by changing the folder's settings on the Dropbox website or deleting it. If you change your mind or leave a folder accidentally, you can [rejoin it](#) later.

or by deleting it

alyssa & ben plan a party

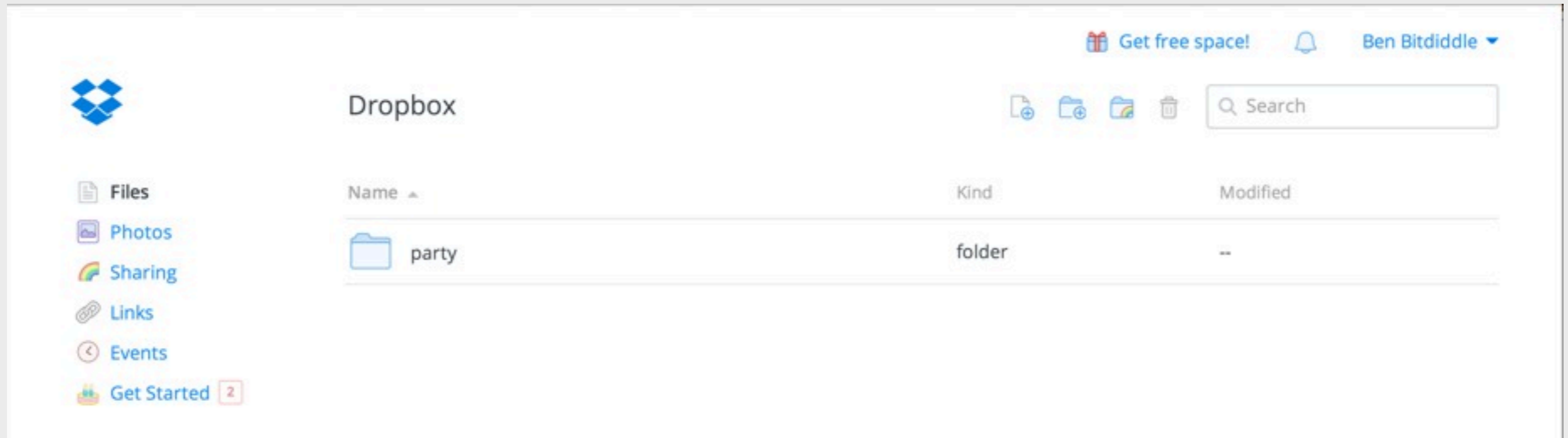
alyssa & ben plan a party



The screenshot shows the Dropbox web interface. At the top right, there is a "Get free space!" button with a gift icon, a notification bell, and the user name "Ben Bitdiddle" with a dropdown arrow. Below this is a search bar with the text "Search". In the center, there are icons for adding a file, adding a folder, a folder with a checkmark, and a trash can. On the left side, there is a navigation menu with the following items: "Files", "Photos", "Sharing", "Links", "Events", and "Get Started" with a red notification badge containing the number "2". The main content area displays a table with the following columns: "Name", "Kind", and "Modified". A single row is visible, representing a folder named "party", with "folder" in the "Kind" column and "--" in the "Modified" column.

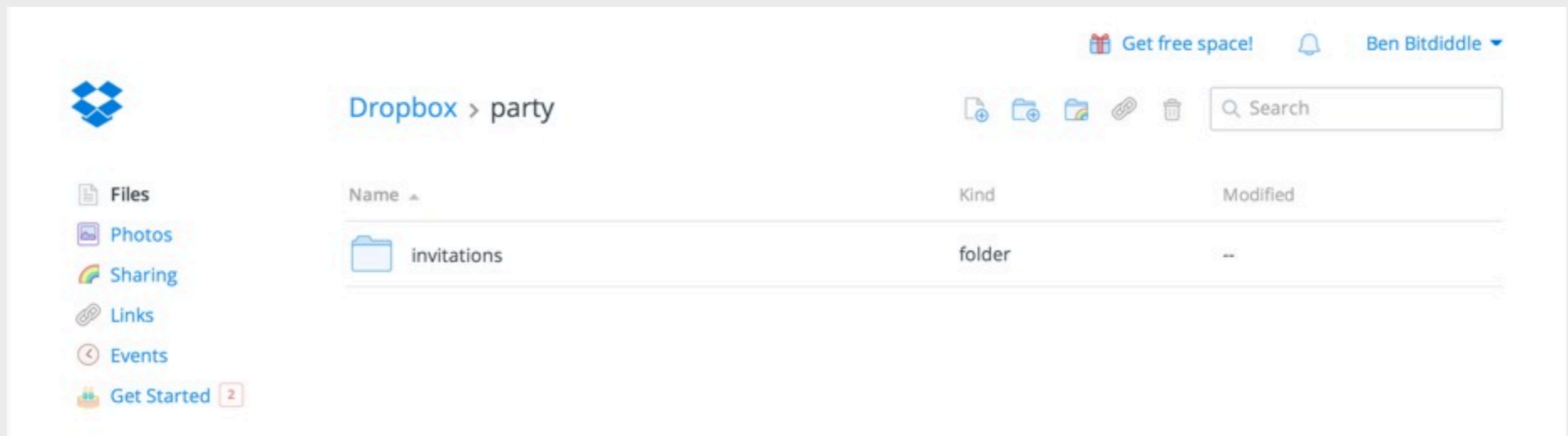
Name	Kind	Modified
party	folder	--

alyssa & ben plan a party



The screenshot shows the Dropbox root directory. The top right corner features a "Get free space!" button, a notification bell, and the user name "Ben Bitdiddle". The left sidebar contains navigation options: Files, Photos, Sharing, Links, Events, and Get Started (with a notification badge). The main content area displays a table with columns for Name, Kind, and Modified. A single folder named "party" is listed.

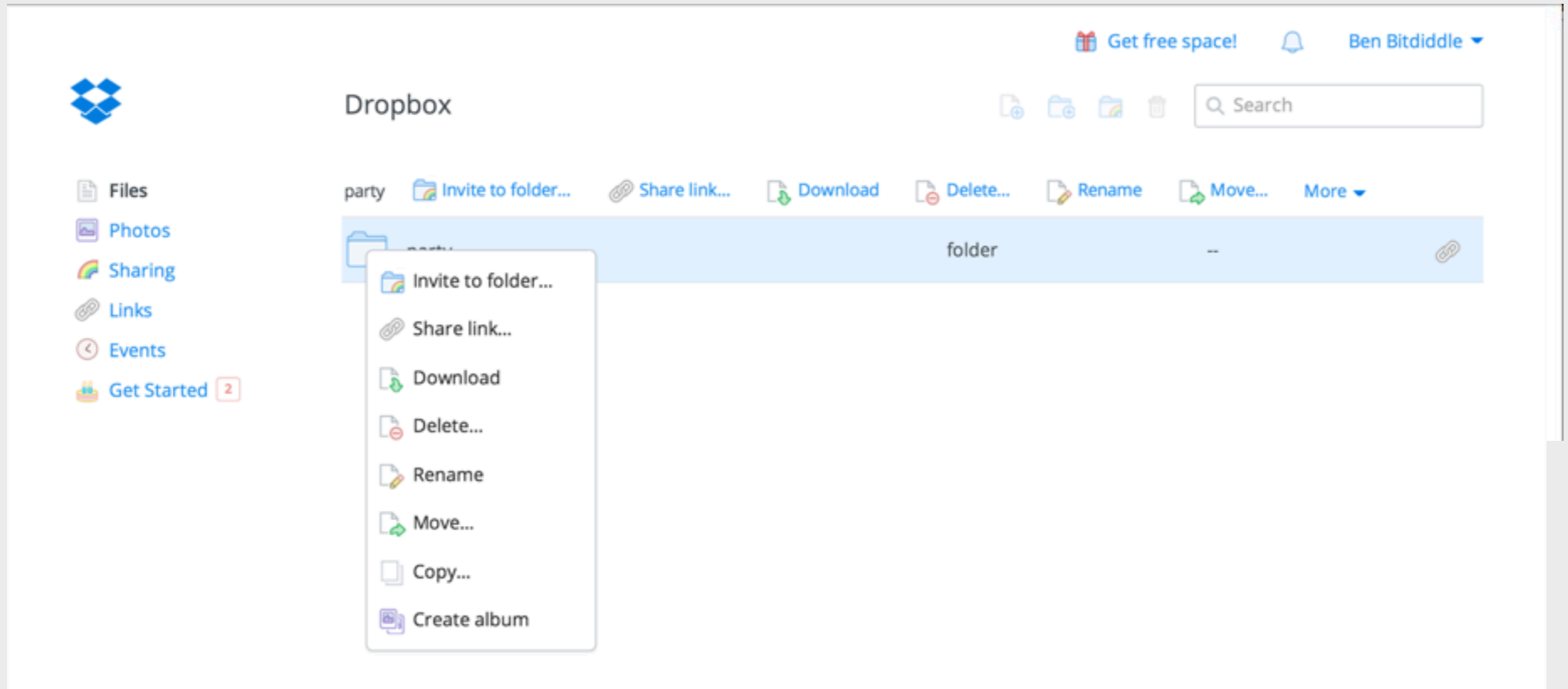
Name	Kind	Modified
party	folder	--



The screenshot shows the contents of the "party" folder. The breadcrumb path is "Dropbox > party". The top right corner features a "Get free space!" button, a notification bell, and the user name "Ben Bitdiddle". The left sidebar is identical to the previous screenshot. The main content area displays a table with columns for Name, Kind, and Modified. A single folder named "invitations" is listed.

Name	Kind	Modified
invitations	folder	--

alyssa & ben plan a party

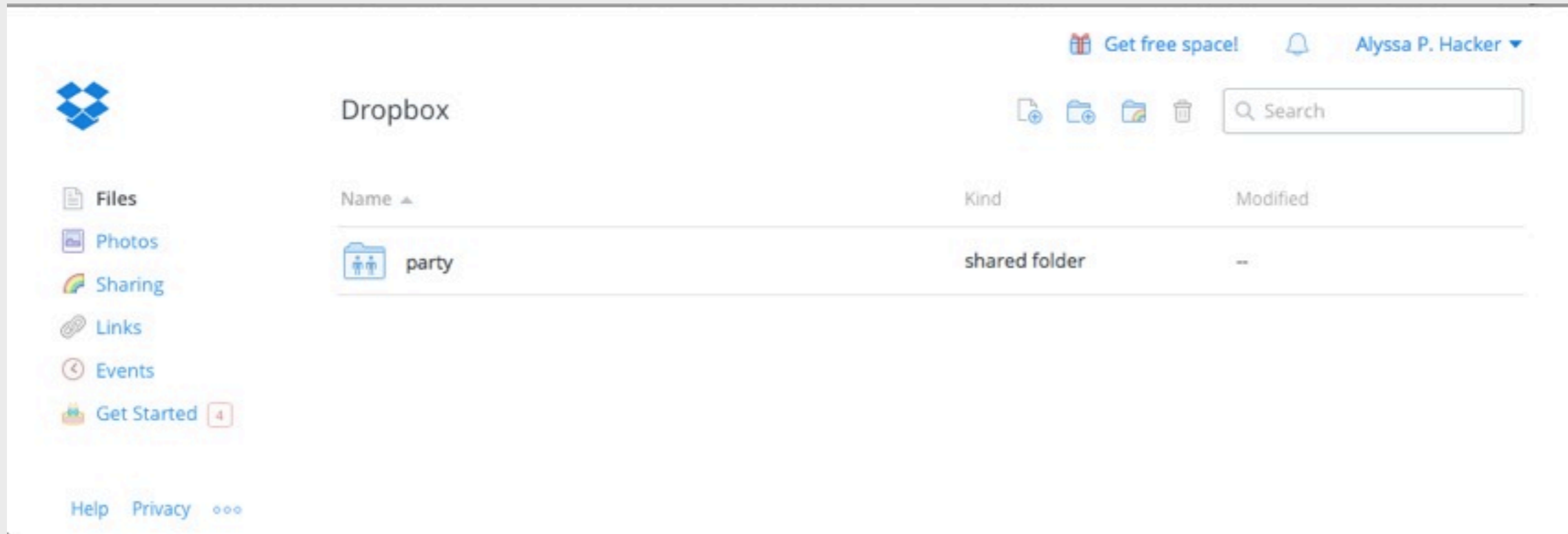


alyssa & ben plan a party


The image shows a screenshot of the Dropbox web interface. A modal dialog box titled "Share 'party' with others" is open in the center. The dialog has a close button (X) in the top right corner. Below the title, there is a checkbox labeled "Allow members to invite others" which is checked. Underneath, there is a search input field containing the text "alyssa". To the right of the search field is a link that says "Import contacts". Below the search field, a list of search results is shown. The first result is highlighted in light blue and includes an envelope icon, the name "Alyssa P. Hacker", and the email address "dnj+alice@csail.mit.edu". At the bottom of the dialog, there are two buttons: a blue "Share folder" button and a white "Cancel" button. The background of the interface is dimmed, showing the Dropbox logo, navigation menu (Files, Photos, Sharing, Links, Events, Get Started), and user profile information (Ben Bitdiddle) in the top right.

alyssa spoils everything

alyssa spoils everything

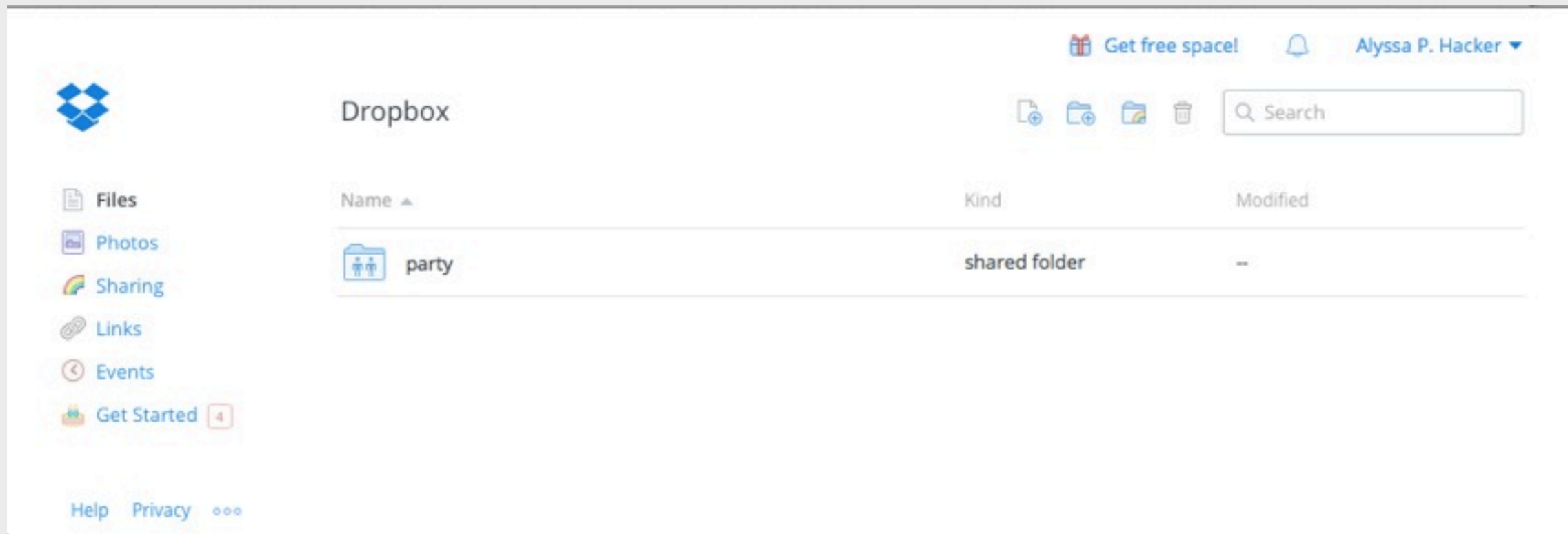


The screenshot shows the Dropbox web interface. At the top right, there is a notification "Get free space!" and the user's name "Alyssa P. Hacker" with a dropdown arrow. Below this is a search bar and icons for file operations. The main content area displays a table with columns for "Name", "Kind", and "Modified". A single entry is visible: a folder named "party" with a shared folder icon, listed as a "shared folder" with no modification date.


Name ▲	Kind	Modified
 party	shared folder	--

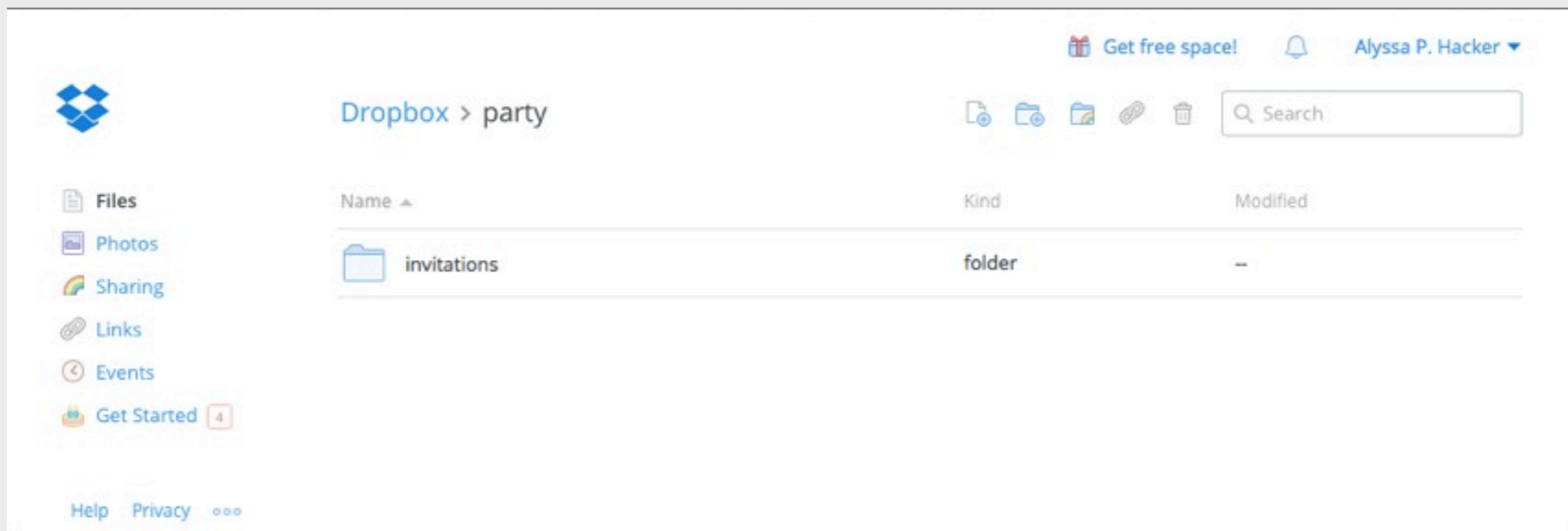
Left sidebar navigation: Files, Photos, Sharing, Links, Events, Get Started (4). Bottom left: Help, Privacy, and a menu icon.

alyssa spoils everything




The screenshot shows the Dropbox root directory. At the top right, there is a "Get free space!" button, a notification bell, and the user's name "Alyssa P. Hacker". Below this is a search bar and several utility icons. On the left, a sidebar contains navigation options: Files, Photos, Sharing, Links, Events, and Get Started (with a notification badge). The main content area displays a table with columns for Name, Kind, and Modified. A single entry is visible: a shared folder named "party".

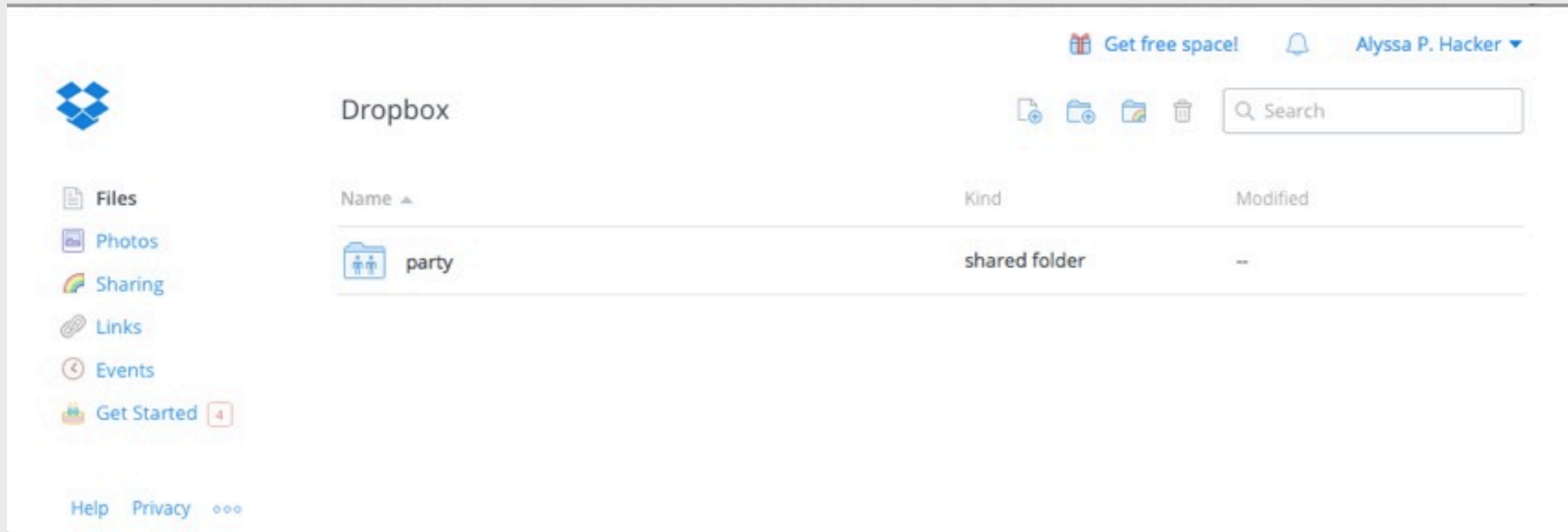
Name	Kind	Modified
 party	shared folder	--




The screenshot shows the contents of the "party" shared folder. The breadcrumb path is "Dropbox > party". The utility icons in the top right now include a link icon. The sidebar remains the same. The main content area displays a table with columns for Name, Kind, and Modified. A single entry is visible: a folder named "invitations".

Name	Kind	Modified
 invitations	folder	--

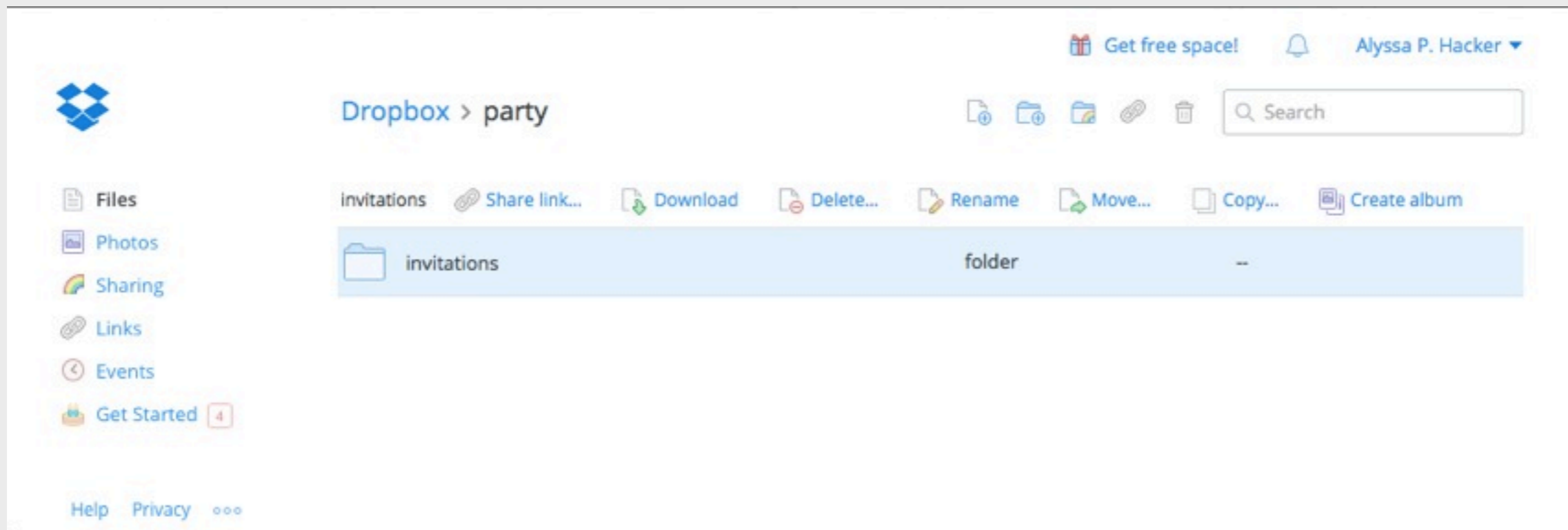
alyssa spoils everything




The screenshot shows the Dropbox home page for user Alyssa P. Hacker. The interface includes a top navigation bar with a "Get free space!" button, a notification bell, and the user's name. Below this is a sidebar with navigation options: Files, Photos, Sharing, Links, Events, and Get Started (with a notification badge). The main content area displays a table of items:

Name	Kind	Modified
 party	shared folder	--

At the bottom of the page, there are links for "Help" and "Privacy".



The screenshot shows the Dropbox interface for the "party" folder. The breadcrumb path is "Dropbox > party". The top navigation bar is identical to the previous screenshot. The sidebar is also the same. The main content area shows a table of items within the "party" folder:

invitations		
 invitations	folder	--

Below the table, there is a row of action buttons: "Share link...", "Download", "Delete...", "Rename", "Move...", "Copy...", and "Create album". At the bottom of the page, there are links for "Help" and "Privacy".

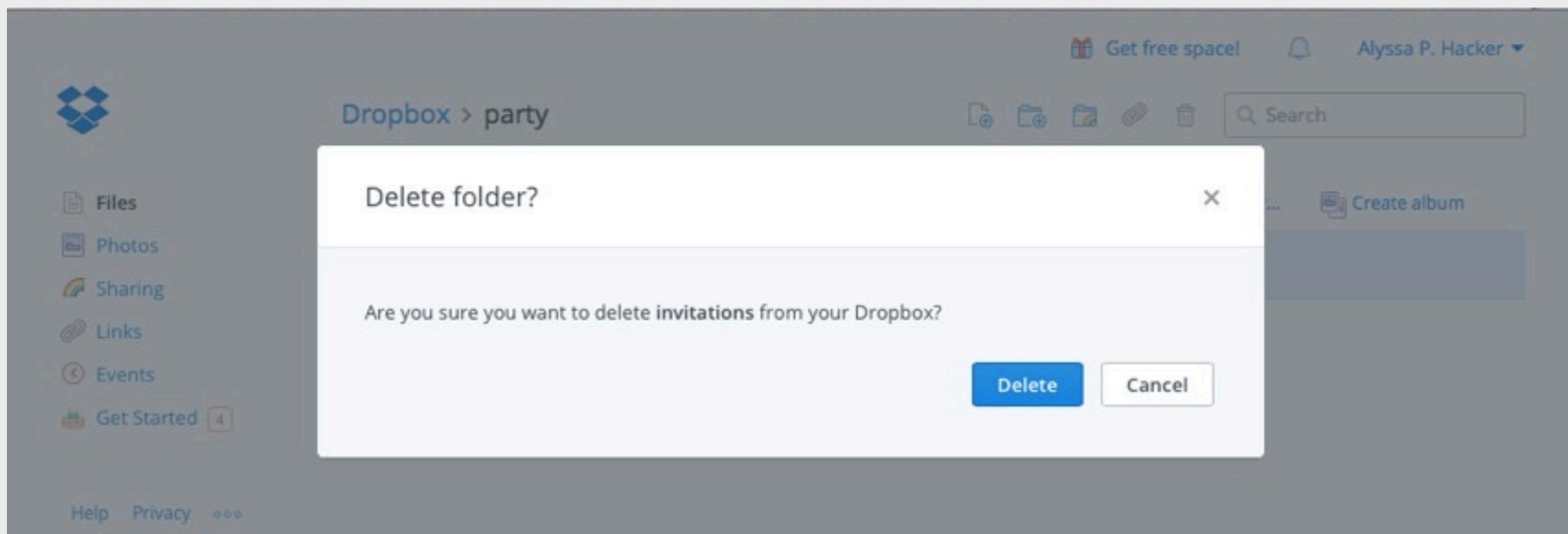
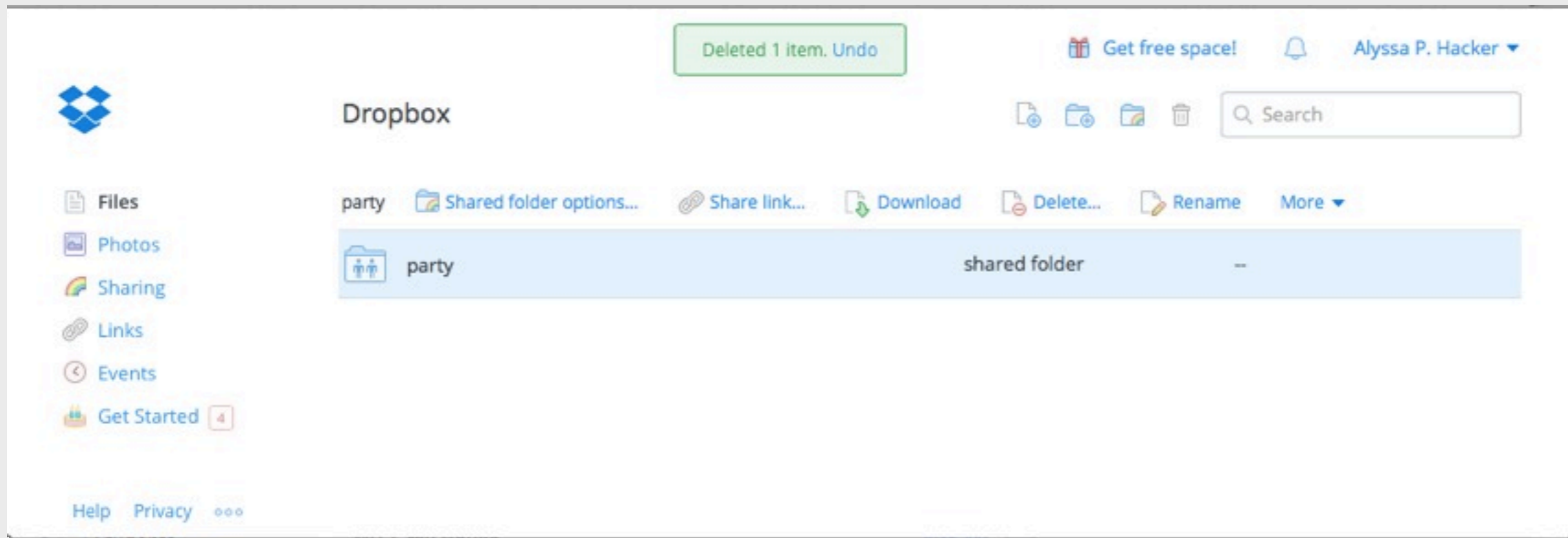
alyssa spoils everything

The screenshot shows the Dropbox web interface. At the top right, there is a "Get free space!" button, a notification bell, and the user's name "Alyssa P. Hacker". Below this is a search bar and icons for file operations. The main content area displays a table with columns for "Name", "Kind", and "Modified". A single row is visible with the folder name "party", kind "shared folder", and a "--" in the modified column. On the left side, there is a navigation menu with options: Files, Photos, Sharing, Links, Events, and Get Started (with a notification badge). At the bottom left, there are links for "Help" and "Privacy".

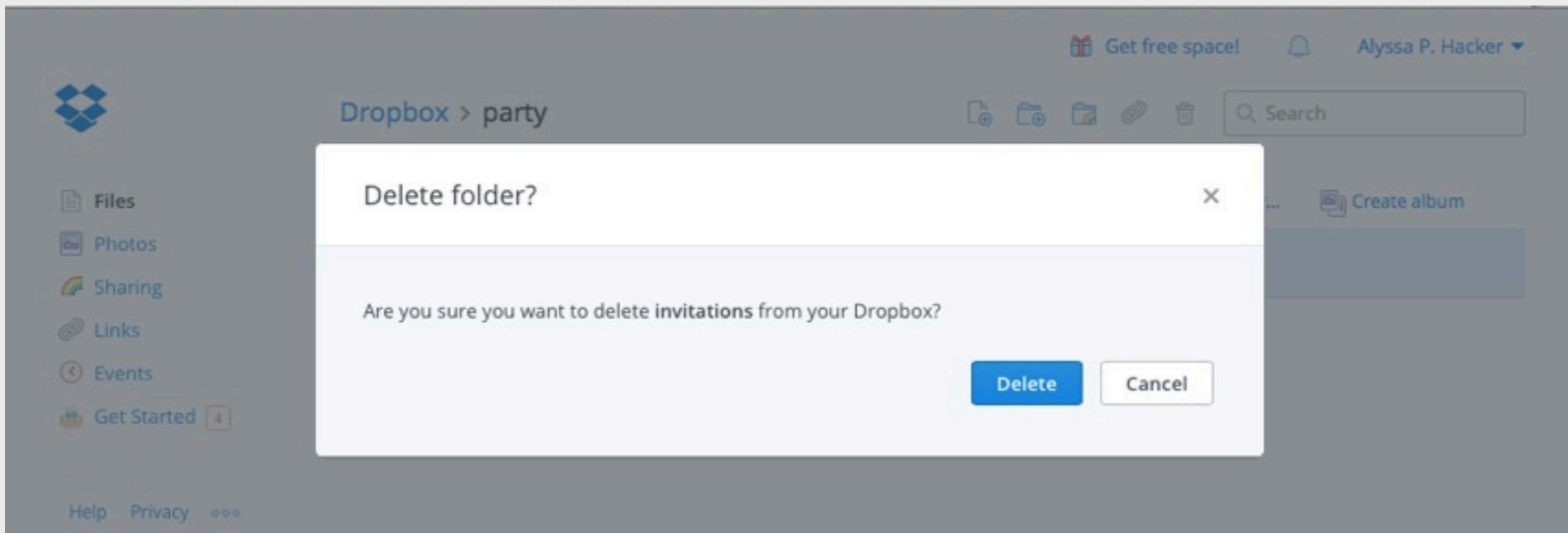
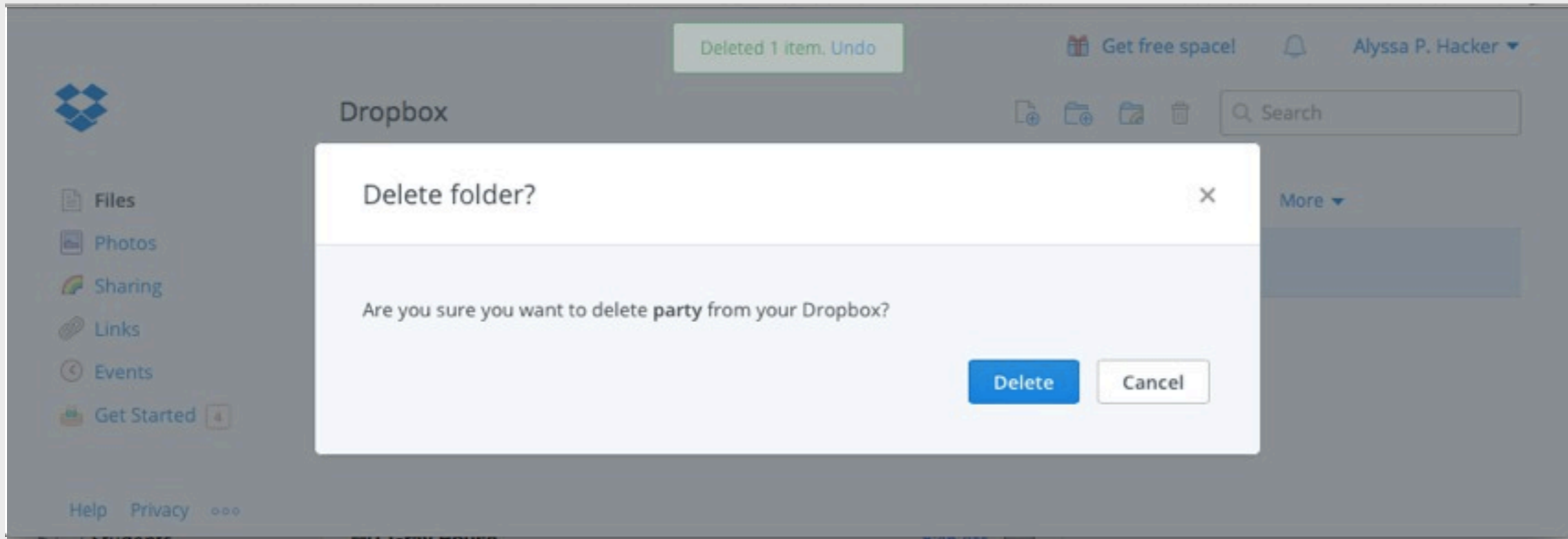
Name	Kind	Modified
party	shared folder	--

This screenshot shows the same Dropbox interface as above, but with a modal dialog box overlaid in the center. The dialog box has a title "Delete folder?" and a close button (X). The main text inside the dialog asks, "Are you sure you want to delete invitations from your Dropbox?". At the bottom of the dialog, there are two buttons: "Delete" (in blue) and "Cancel" (in white with a grey border). The background interface is dimmed.

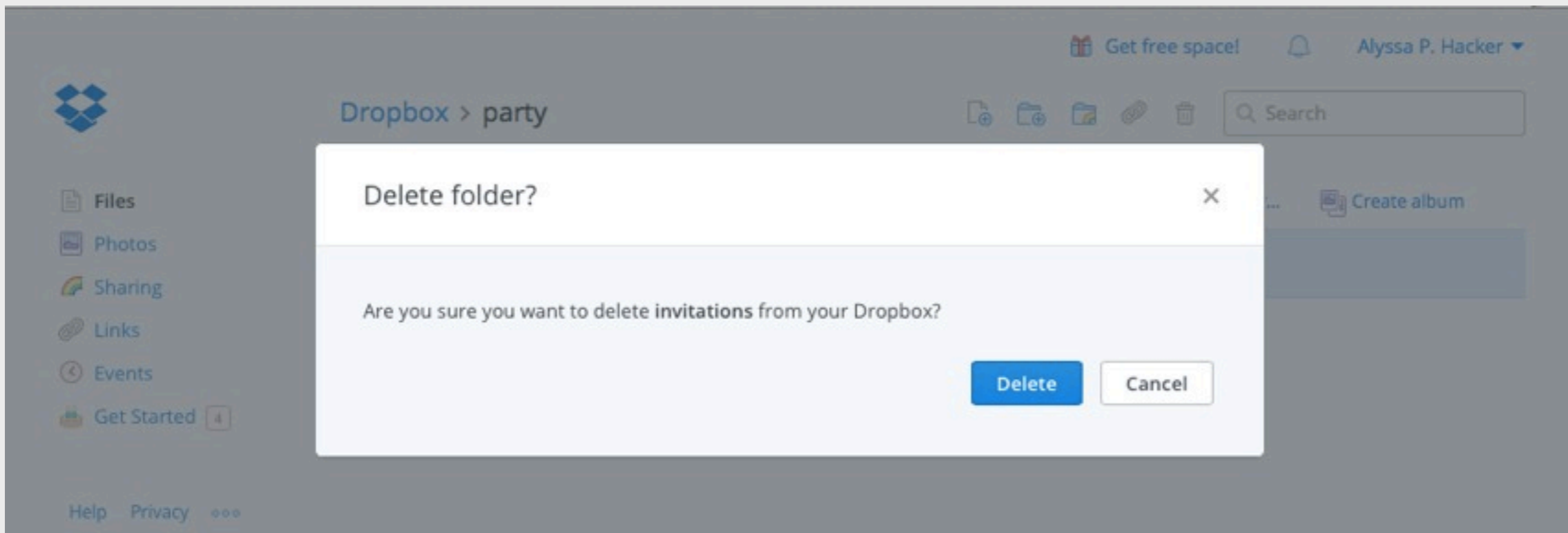
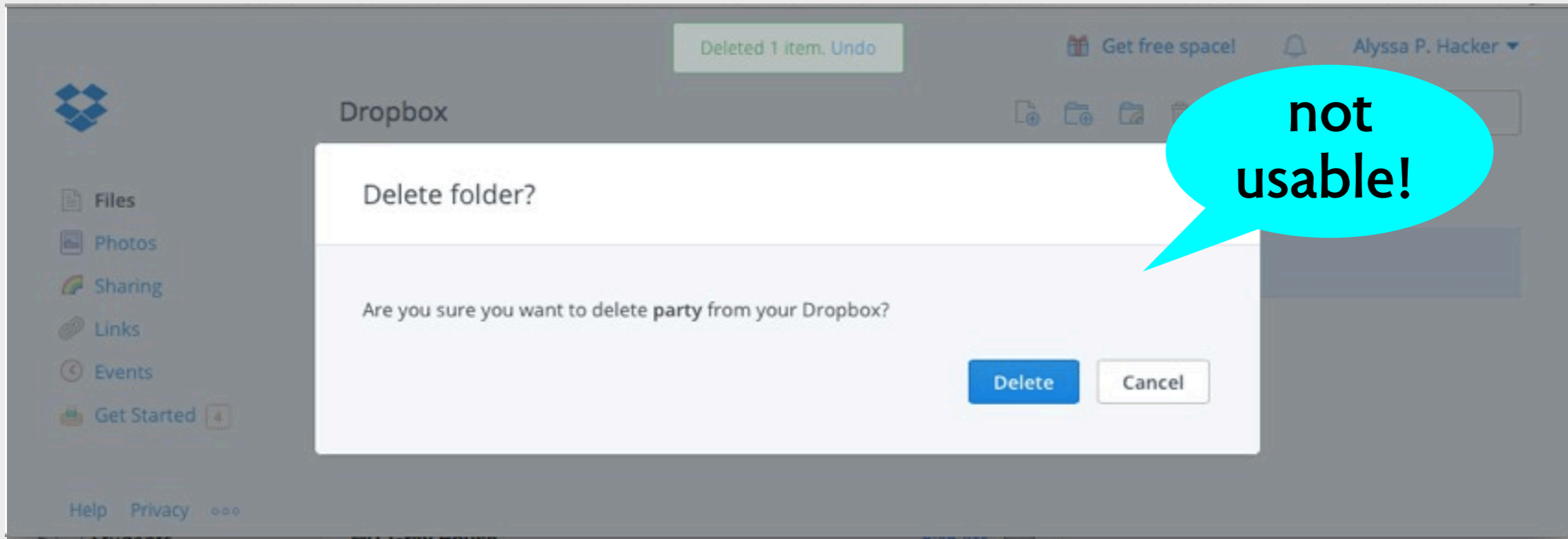
alyssa spoils everything



alyssa spoils everything



alyssa spoils everything



in summary



How do I leave a shared folder?

[« Back to Help Center](#)

You can leave a [shared folder](#) at any time by changing the folder's settings on the Dropbox website or deleting it. If you change your mind or leave a folder accidentally, you can [rejoin it](#) later.

in summary



How do I leave a shared folder?

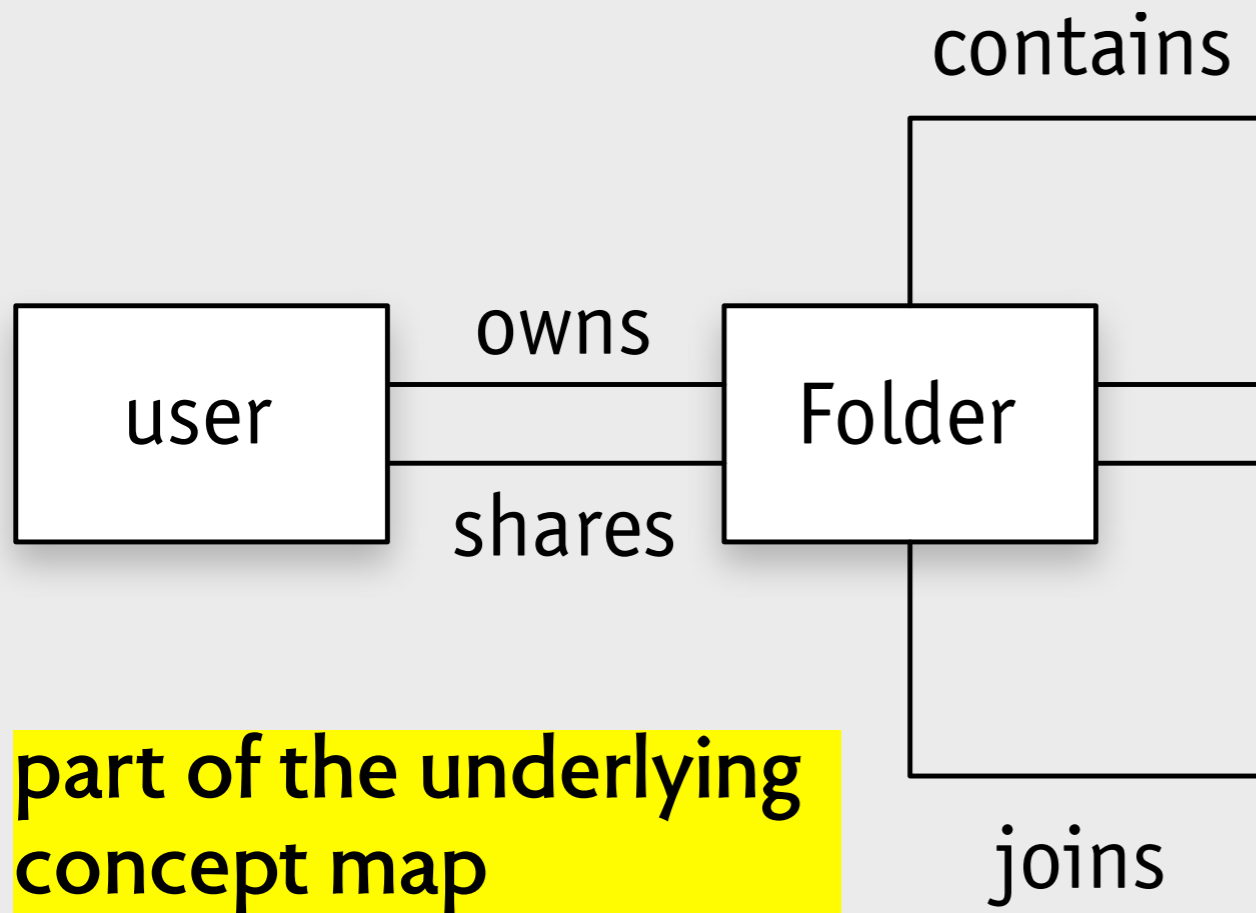
[« Back to Help Center](#)

You can leave a [shared folder](#) at any time by changing the permissions or deleting it. If you change your mind or leave a folder acc

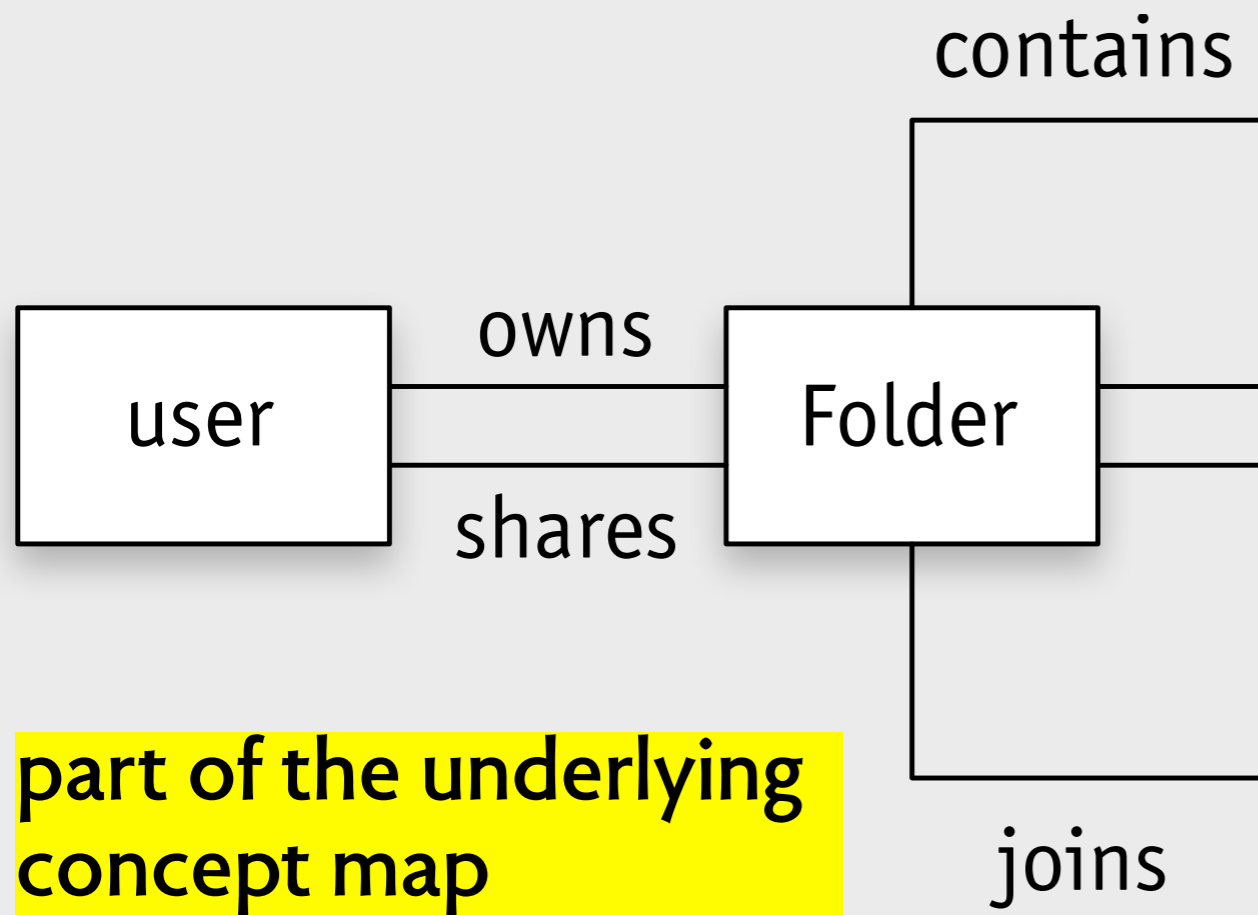
**concepts are fine: share,
leave, rejoin.**

**so what's wrong? user
interface confuses
deletion with leaving**

what's going on?

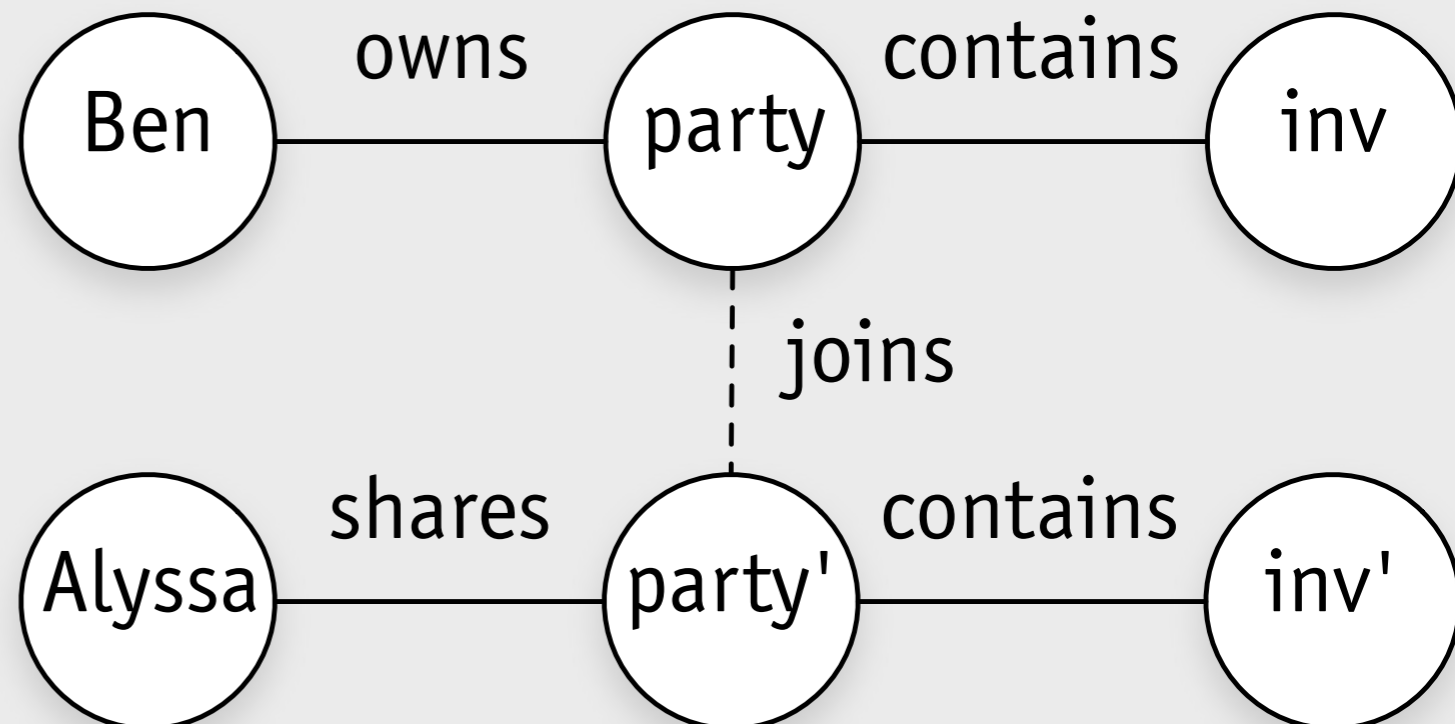


what's going on?



part of the underlying concept map

Alyssa deletes party', party stays
Alyssa deletes inv', inv goes



mozying along

http://support.mozy.com/articles/en_US/FAQ/What-happens-if-I-delete-a-file-marked-for-backup

What happens if I delete a file marked for backup?

Article ID: 000003709

Date: 07/15/2012



| [Comment](#) |



If you delete a file and then run a backup, MozyHome assumes that you no longer need a backup copy of that file and marks the file to be removed. (We keep it for 30 days, just in case you change your mind.) After 30 days, the file is deleted from our servers and you are no longer able to get it back.

mozying along

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not
coherent!

If you delete a file and then run a backup, MozyHome assumes that you no longer need a backup copy of that file and marks the file to be removed...

what's going on?

what's going on?

propagate deletion?

file sync: yes, to keep things ordered

backup: no, to make sure things aren't lost

what's going on?

propagate deletion?

file sync: yes, to keep things ordered

backup: no, to make sure things aren't lost

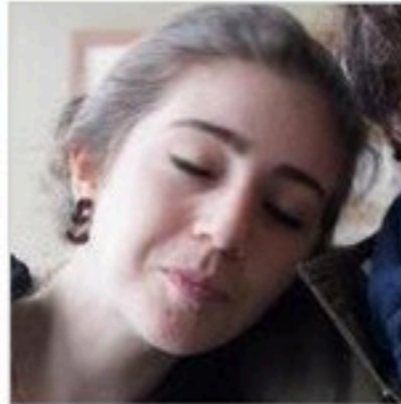
why would Mozy propagate deletion?

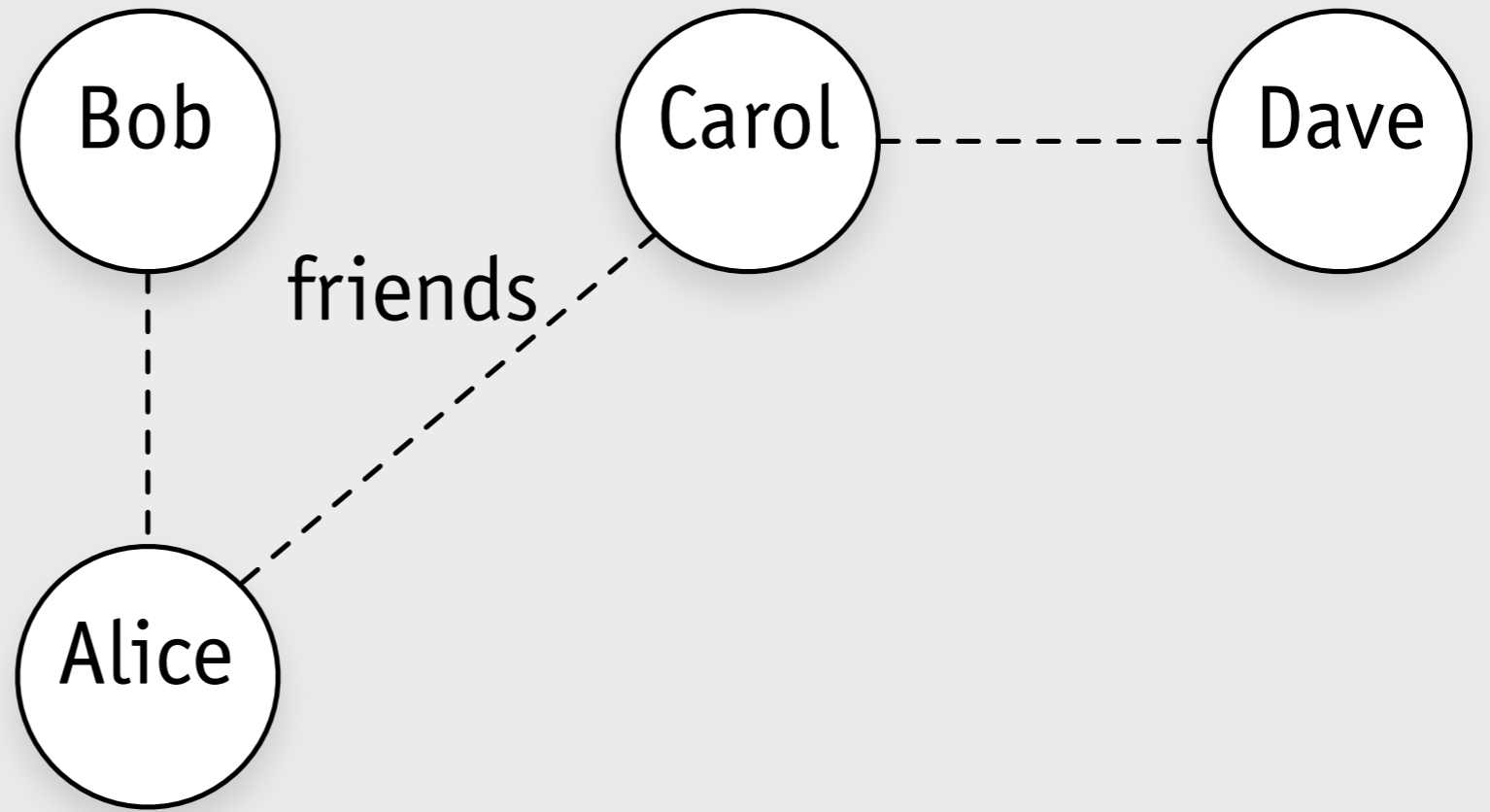
prevent you from using as secondary storage

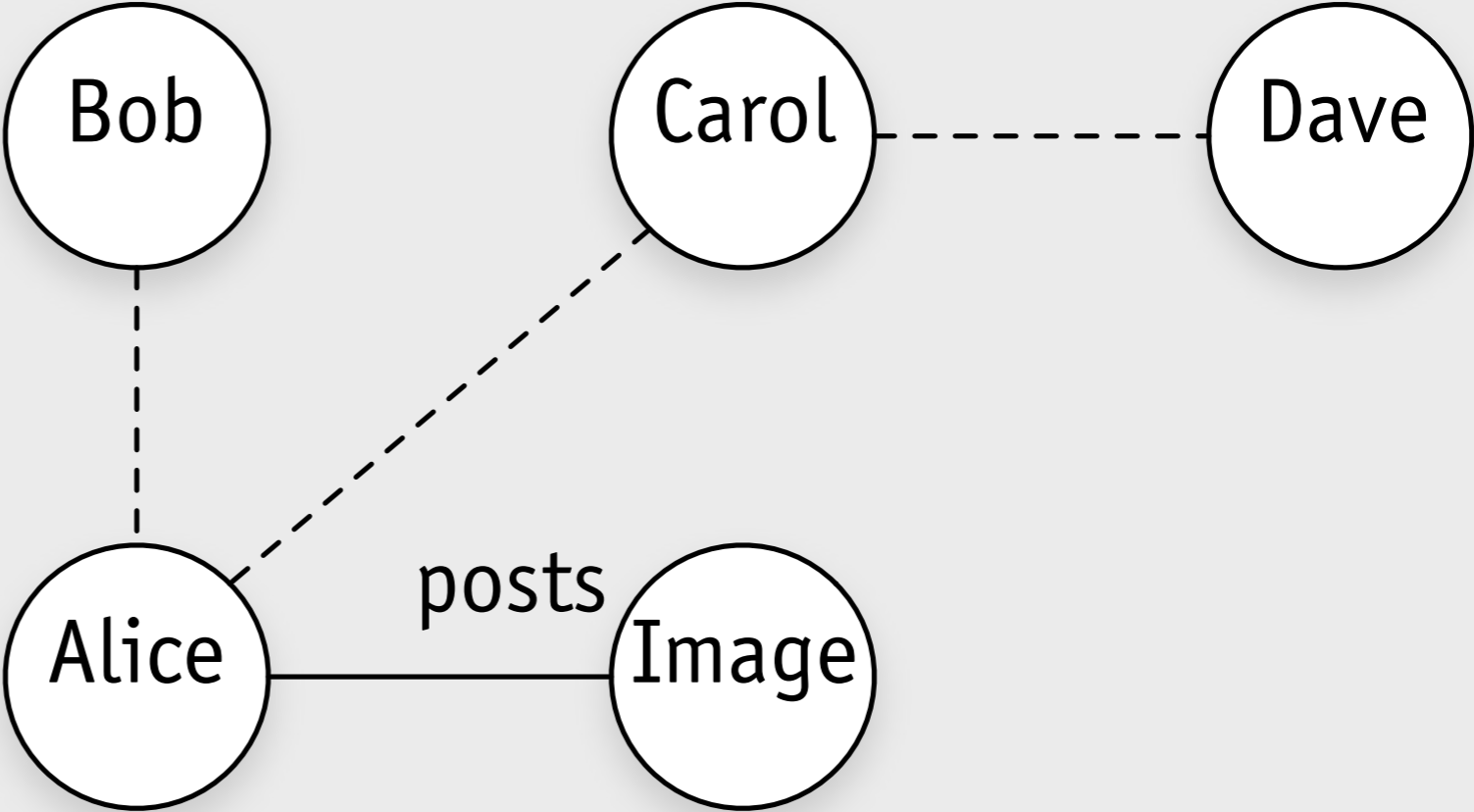


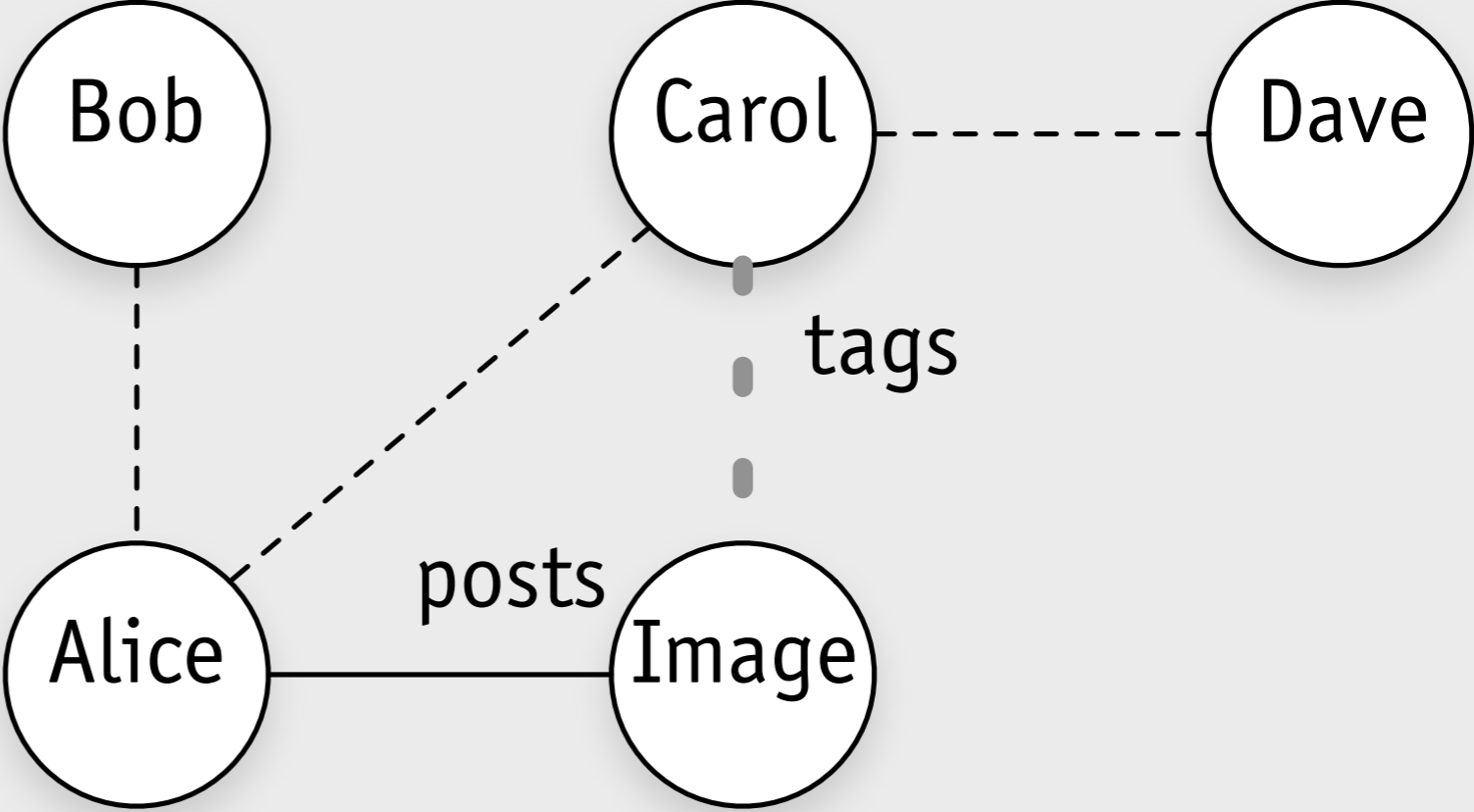
Who Is in These Photos?

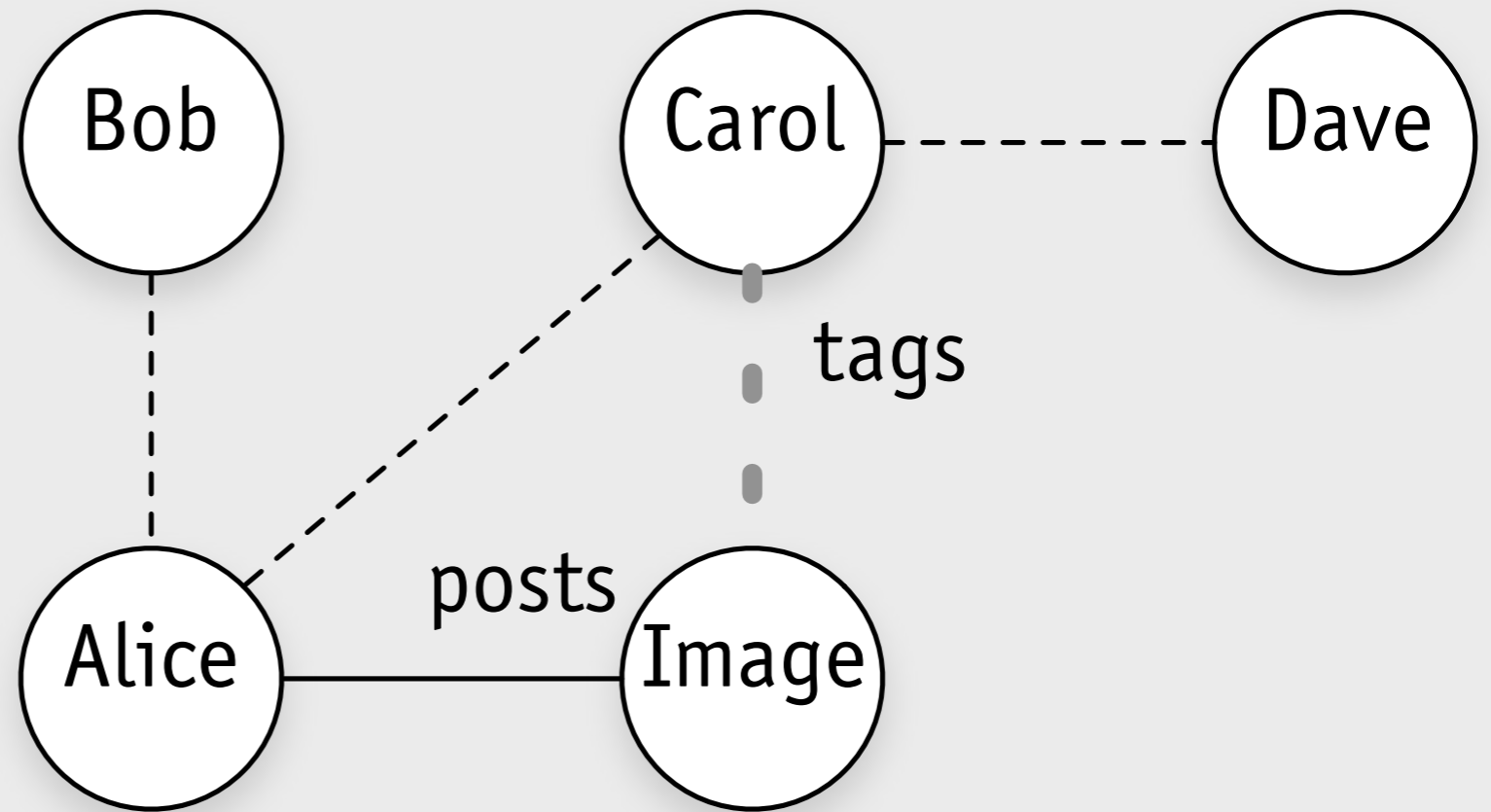
To tag your friends, review the suggested names and click Save Tags at the bottom of this page. If a name is missing or incorrect, list a new name and press Enter.
Remember: If someone doesn't like a photo, they can untag themselves or ask you to take it down.

[Skip Tagging Friends](#)[Save Tags](#)

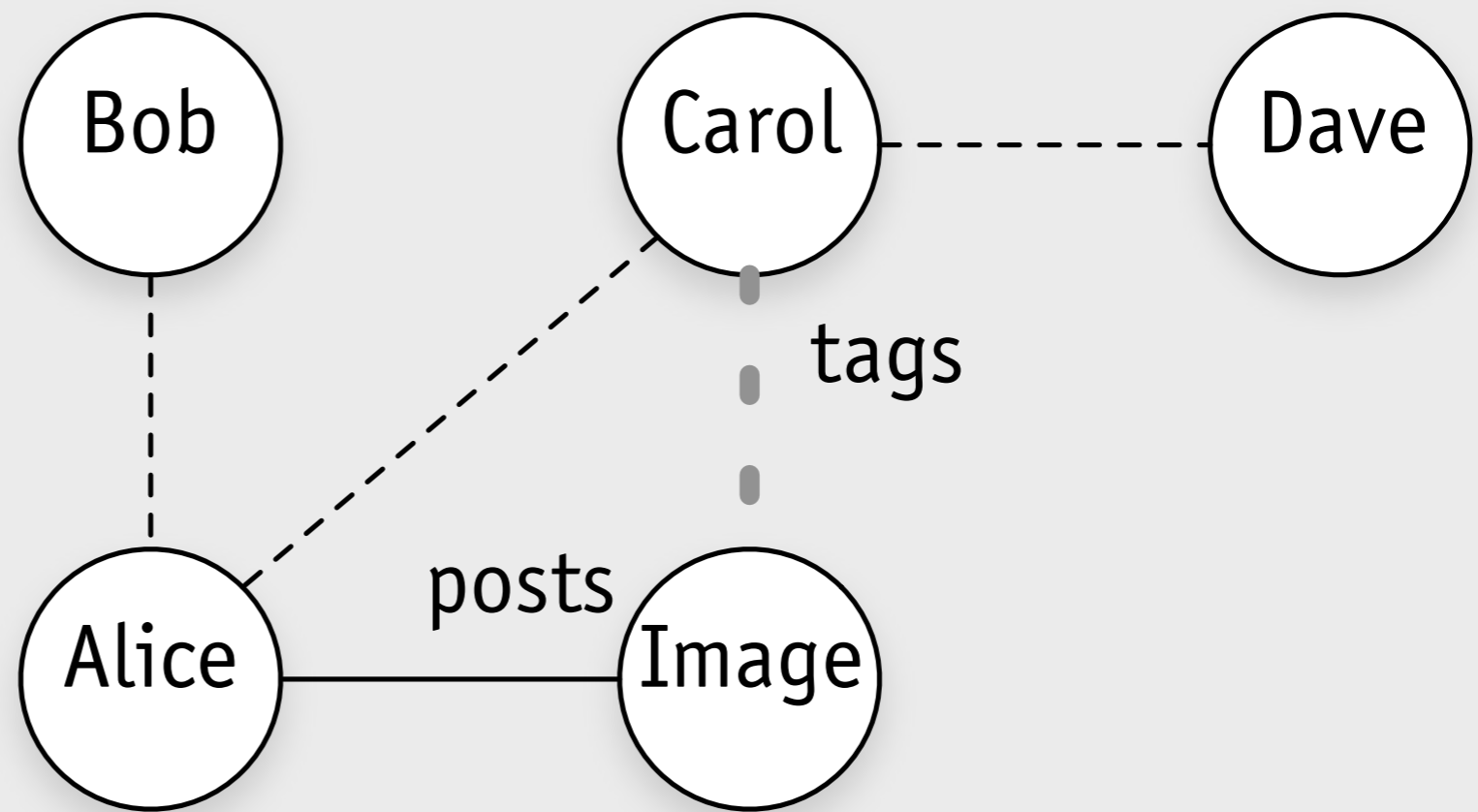








who can see the image?

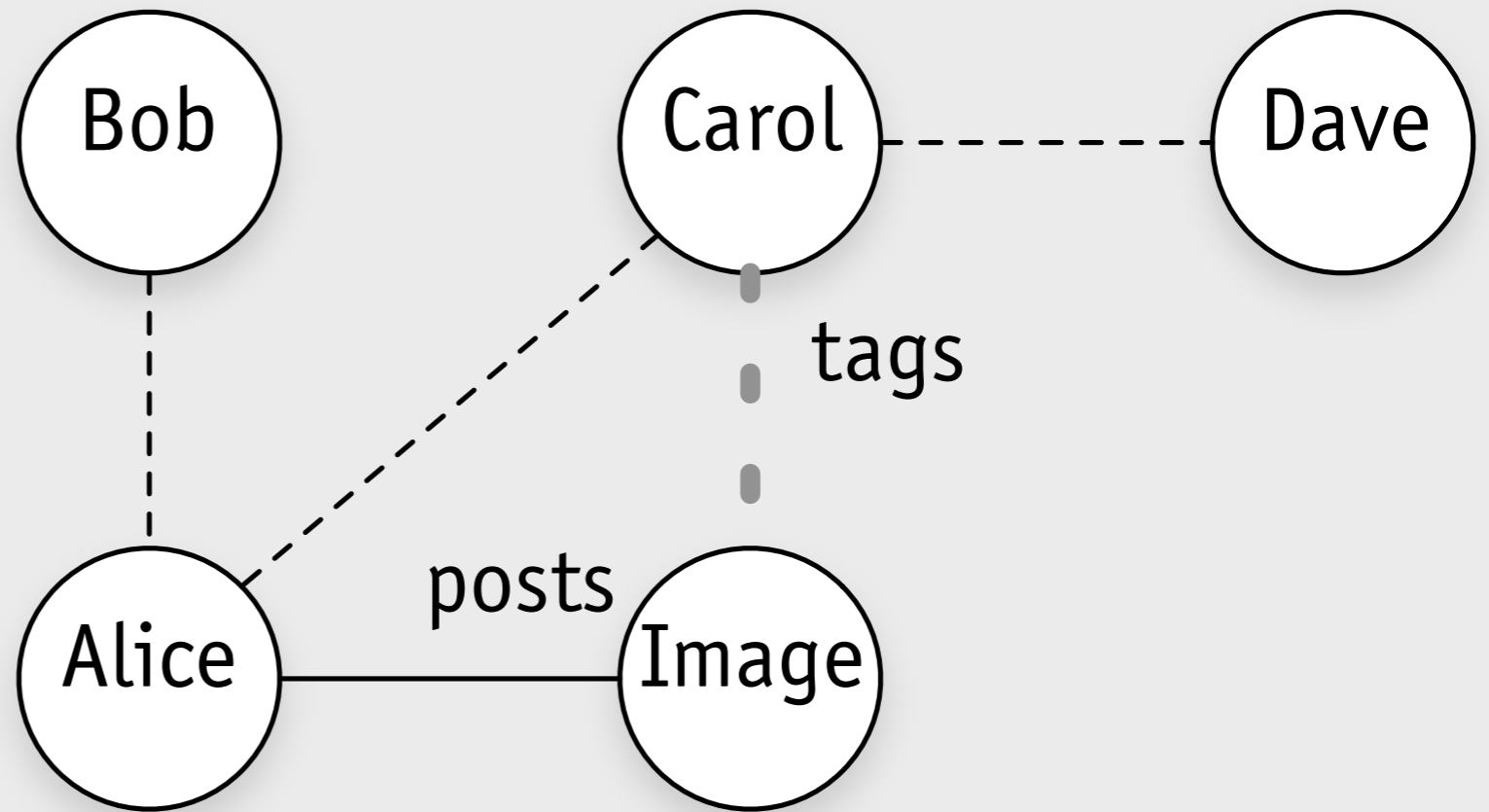


who can see the image?

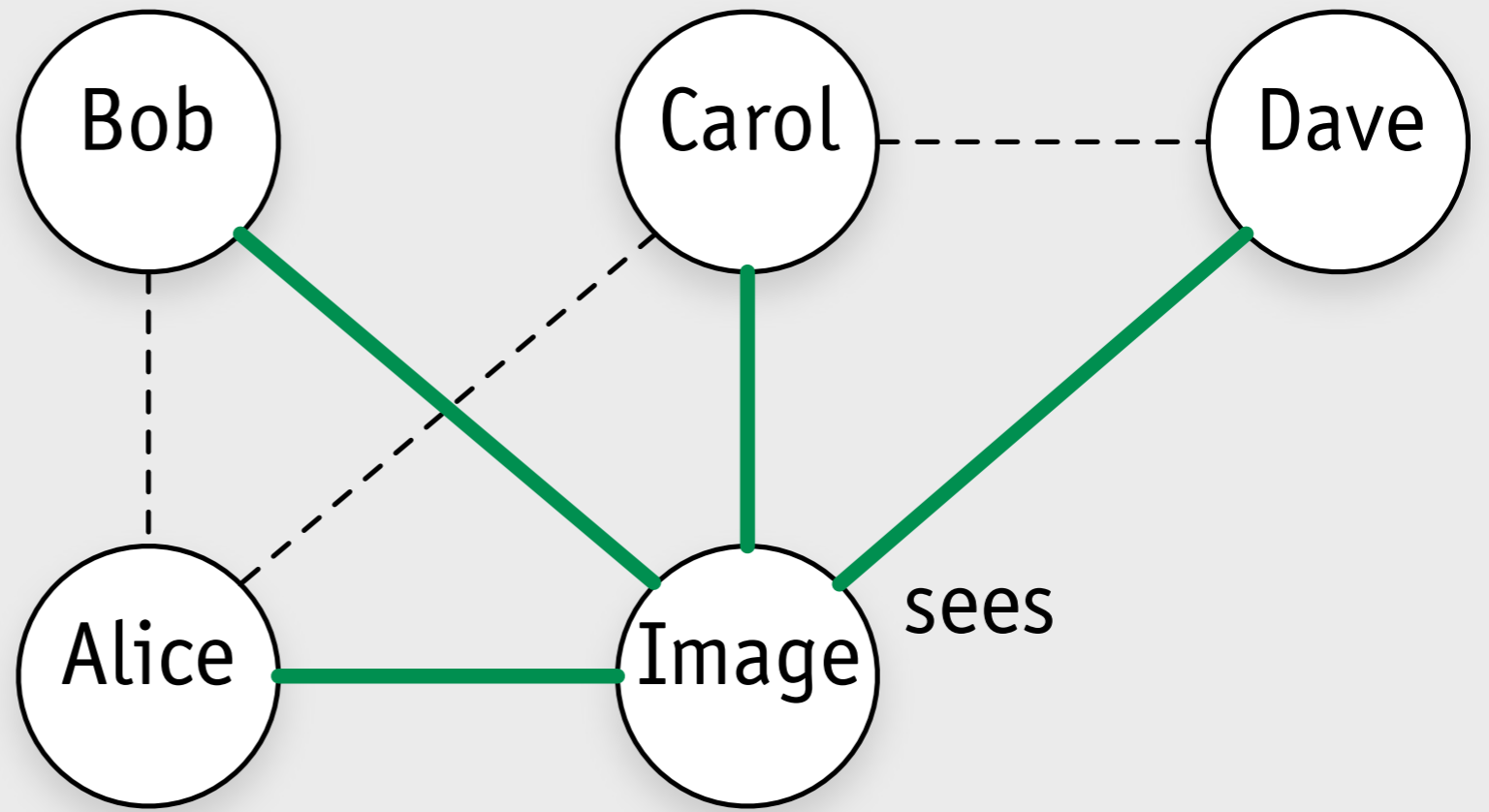
When someone adds a tag to a photo or other post I shared, who can see it?

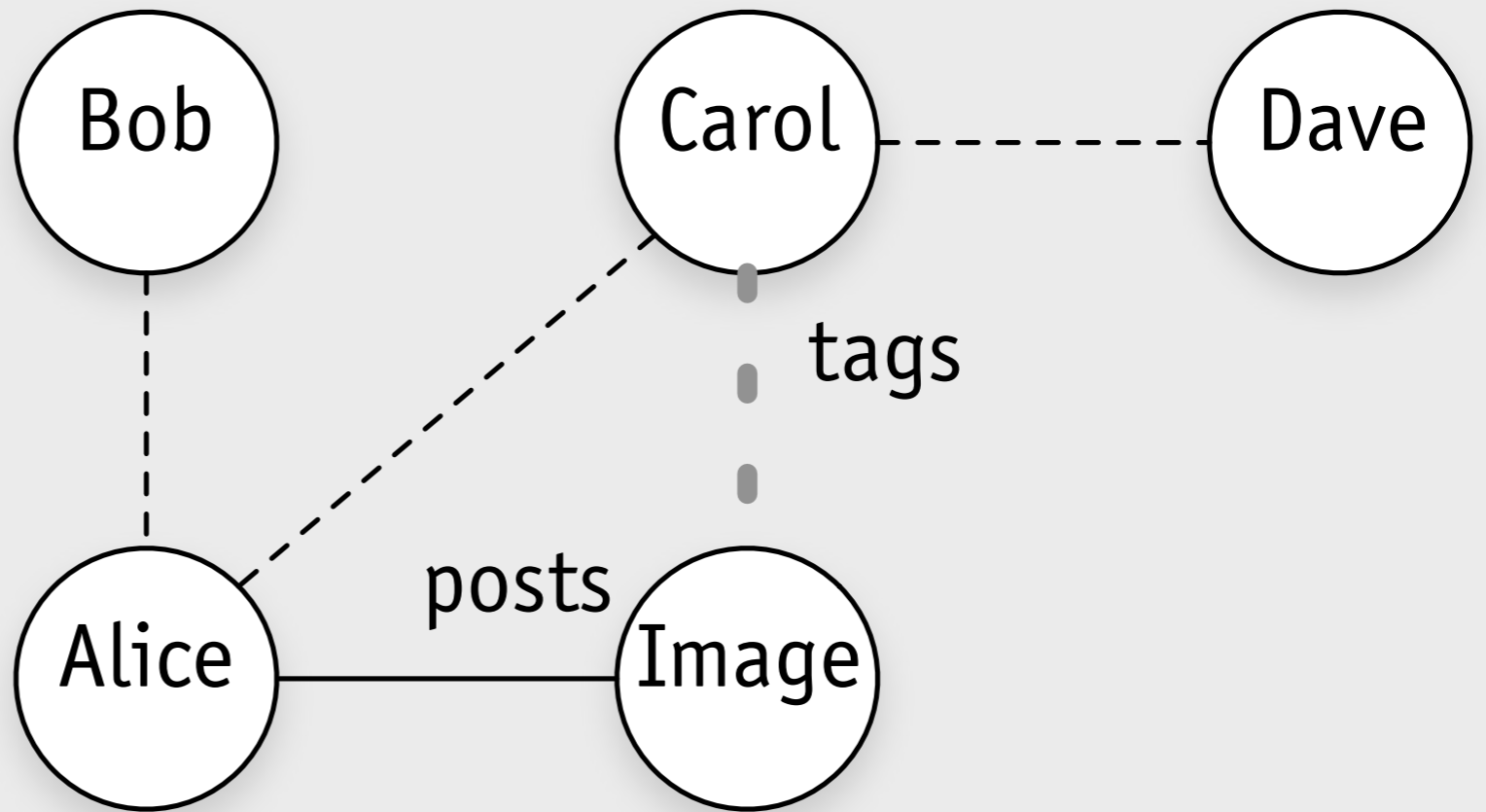
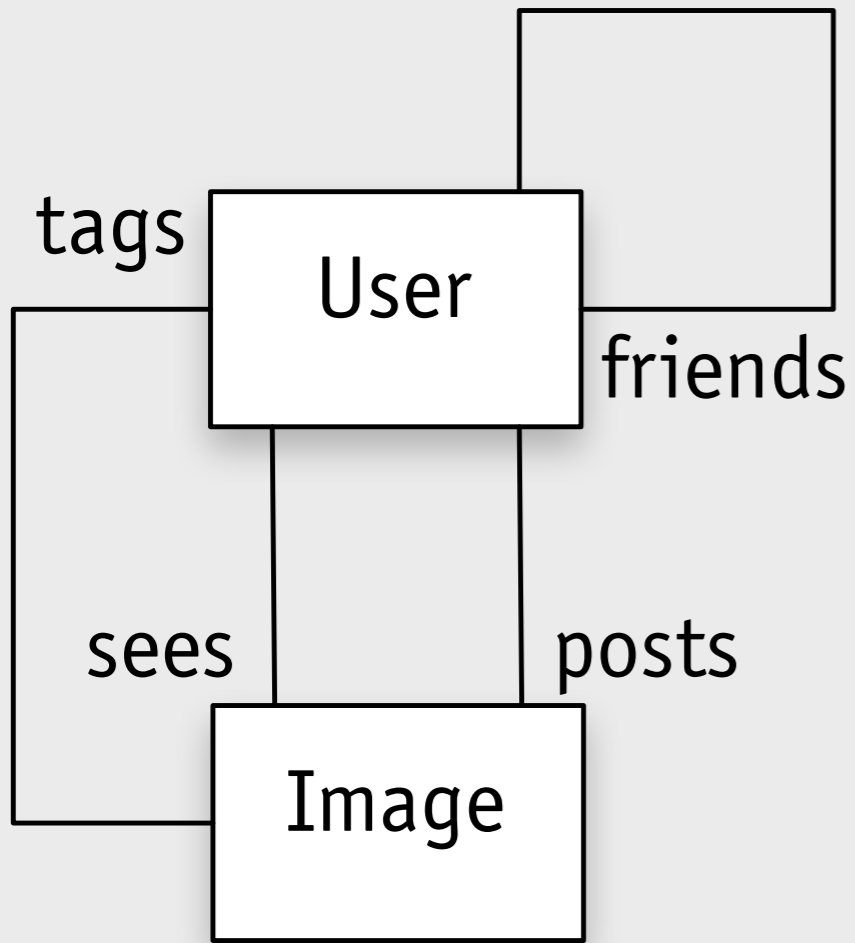
When someone adds a tag to something you shared, it's visible to:

1. The audience you chose for the post or photo
2. The person tagged in the post and their friends

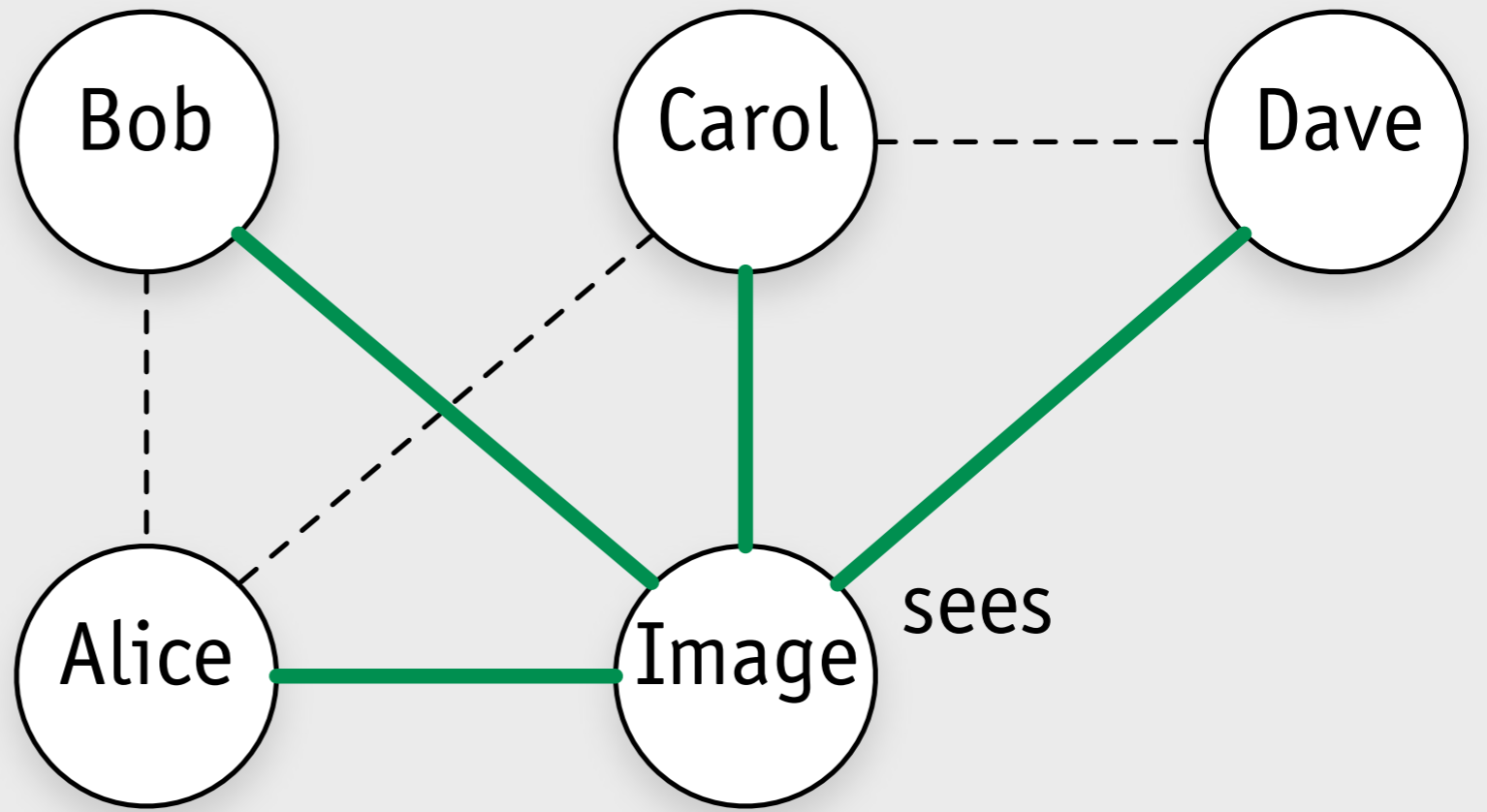


who can see the image?





who can see the image?



tagging in facebook

Privacy Shortcuts



Who can see my stuff?

2013

2012

2011



Timeline and Tagging Settings



Who can add things to my timeline?

Who can post on your timeline?

Friends

Edit

Review posts friends tag you in before they appear on your timeline?

Off

Edit

Who can see things on my timeline?

Review what other people see on your timeline

View As

Who can see posts you've been tagged in on your timeline?

Friends

Edit

Who can see what others post on your timeline?

Only Me

Edit

How can I manage tags people add and tagging suggestions?

Review tags people add to your own posts before the tags appear on Facebook?

On

Edit

When you're tagged in a post, who do you want to add to the audience if they aren't already in it?

Friends

Edit

Who sees tag suggestions when photos that look like you are uploaded?

No One

Edit

tagging in facebook

Privacy Shortcuts



Who can see my stuff?

2013

2012

2011



not simple!

Timeline and Tagging Settings

Who can add things to my timeline?	Who can post on your timeline?	Friends	Edit
	Review posts friends tag you in before they appear on your timeline?	Off	Edit
Who can see things on my timeline?	Review what other people see on your timeline		View As
	Who can see posts you've been tagged in on your timeline?	Friends	Edit
	Who can see what others post on your timeline?	Only Me	Edit
How can I manage tags people add and tagging suggestions?	Review tags people add to your own posts before the tags appear on Facebook?	On	Edit
	When you're tagged in a post, who do you want to add to the audience if they aren't already in it?	Friends	Edit
	Who sees tag suggestions when photos that look like you are uploaded?	No One	Edit

tagging in facebook

Privacy Shortcuts



Who can see my stuff?

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Timeline and Tagging Settings

Who can add things to my timeline?	Who can post on your timeline?	Friends	Edit
	Review posts friends tag you in before they appear on your timeline?	Off	Edit
Who can see things on my timeline?	Review what other people see on your timeline		View As
	Who can see posts you've been tagged in on your timeline?	Friends	Edit
	Who can see what others post on your timeline?	Only Me	Edit
How can I manage tags people add and tagging suggestions?	Review tags people add to your own posts before the tags appear on Facebook?		Edit
	When you're tagged in a post, who do you want to add to the audience if they aren't already in it?	Friends	Edit
	Who sees tag suggestions when photos that look like you are uploaded?	No One	Edit

not complete!

what that dialog should really say

Timeline and Tagging Settings

When a psychopathic stranger photographs me at a party and tags me, who can see the photo?

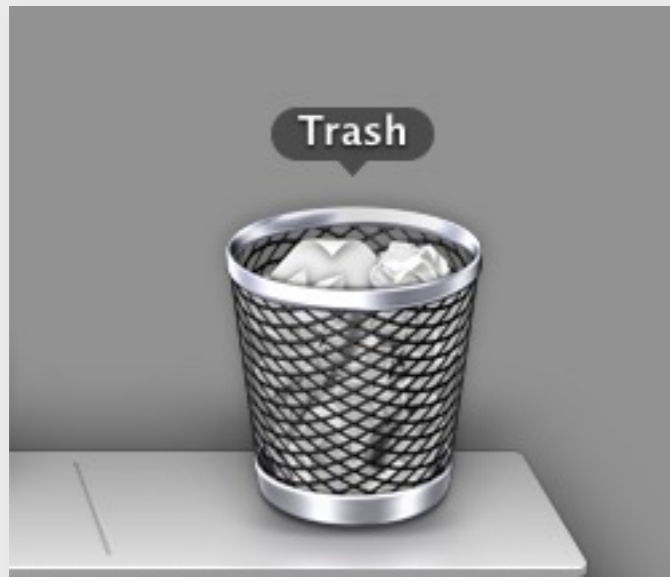
All of their friends and fellow psychopaths, your future employers, girlfriends, and parents-in-law

Thank you, Facebook!



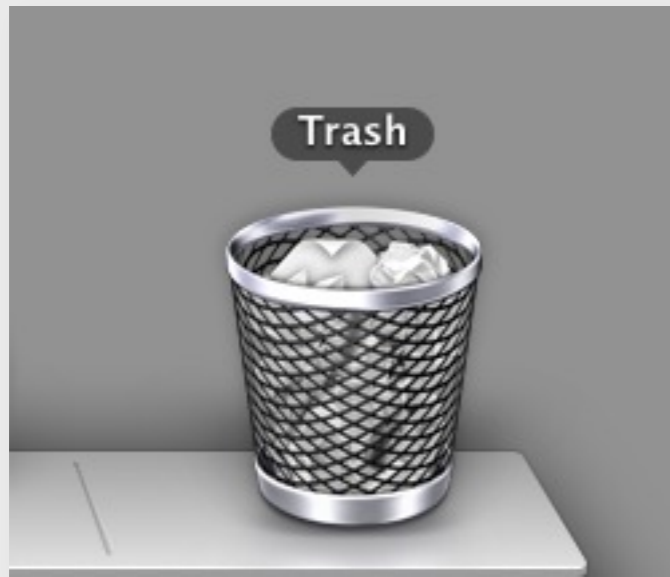
the inadequate

undoing deletion in Mac trash



Trash		
Name	Date Modified	Size
Screen Shot 2013-02-25 at 11.46.27 AM	Today 11:46 AM	58 KB
Screen Shot 2013-02-25 at 11.45.46 AM	Today 11:45 AM	39 KB
bits.key	Yesterday 7:09 PM	326 KB
▶ 2013 2.16.58 PM	Feb 22, 2013 2:16 PM	--
▶ 2013-02-18	Feb 22, 2013 2:12 PM	--
▶ 2013-02-17	Feb 22, 2013 2:12 PM	--
▶ 2013-02-15	Feb 22, 2013 2:12 PM	--

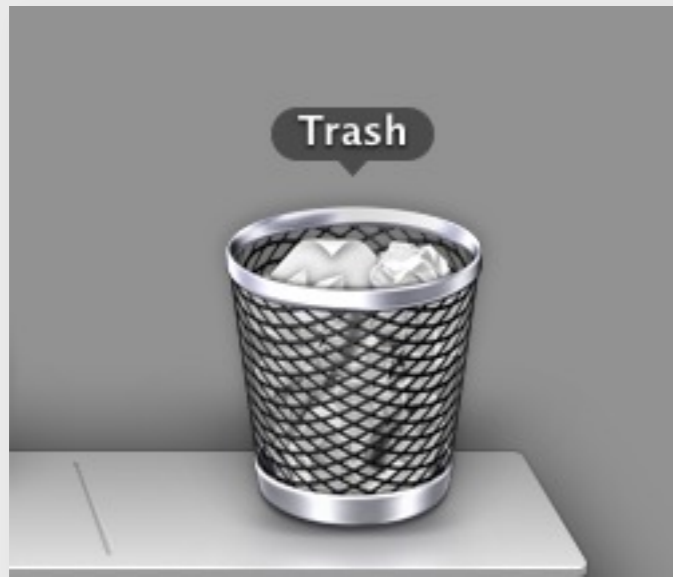
undoing deletion in Mac trash



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▶ 2013-02-18	Feb 22, 2013 2:12 PM	--
▶ 2013-02-17	Feb 22, 2013 2:12 PM	--
▶ 2013-02-15	Feb 22, 2013 2:12 PM	--

deleting from external drive (eg USB)
can't reuse space until trash emptied

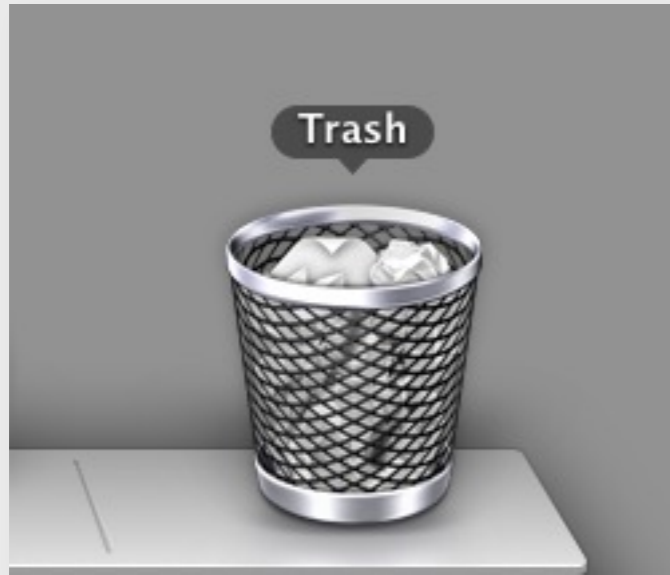
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▶ 2013-02-17	Feb 22, 2013 2:12 PM	--
▶ 2013-02-15	Feb 22, 2013 2:12 PM	--

deleting from external drive (eg USB)
can't reuse space until trash emptied
retrieving accidentally deleted files
no date of deletion

undoing deletion in Mac trash



Trash		
Name	Date Modified	Size
Screen Shot 2013-02-25 at 11.46.27 AM	Today 11:46 AM	58 KB
Screen Shot 2013-02-25 at 11.45.46 AM	Today 11:45 AM	39 KB
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▶ 2013-02-17	Feb 22, 2013 2:12 PM	--
▶ 2013-02-15	Feb 22, 2013 2:12 PM	--

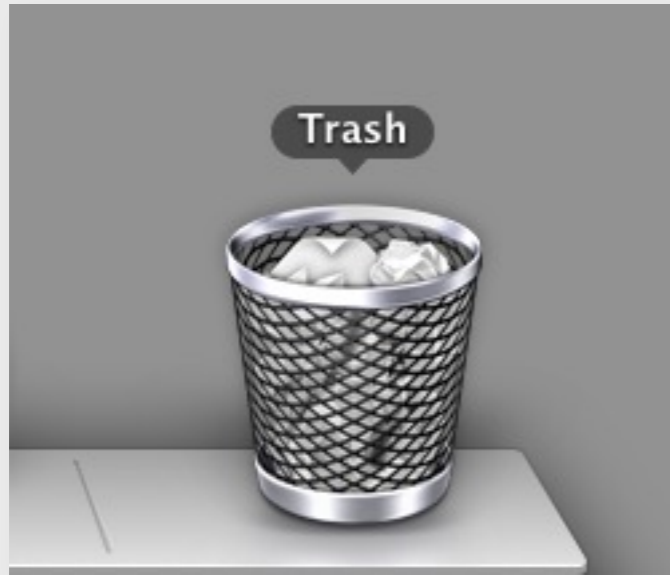
deleting from external drive (eg USB)
can't reuse space until trash emptied

retrieving accidentally deleted files
no date of deletion

partial emptying
not possible

undoing deletion in Mac trash

not complete!

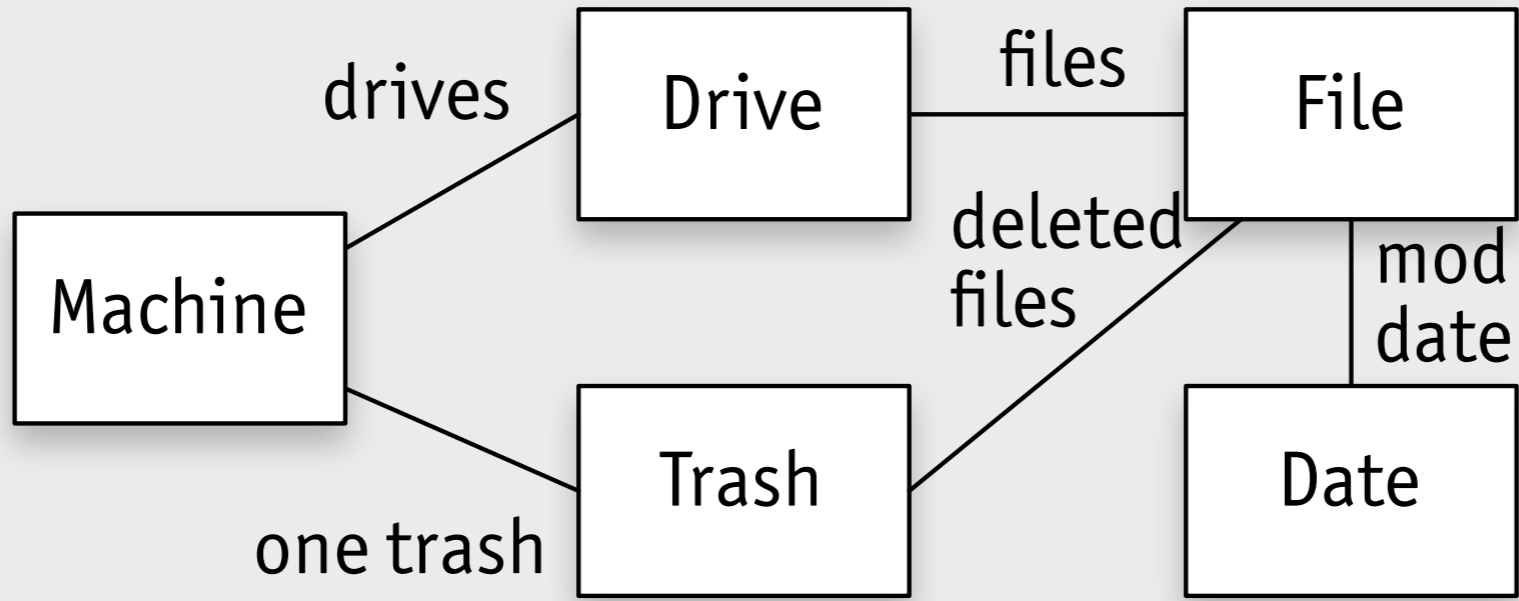


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bits.key	Yesterday 7:09 PM	326 KB
▶ 2013 2.16.58 PM	Feb 22, 2013 2:16 PM	--
▶ 2013-02-18	Feb 22, 2013 2:12 PM	--
▶ 2013-02-17	Feb 22, 2013 2:12 PM	--
▶ 2013-02-15	Feb 22, 2013 2:12 PM	--

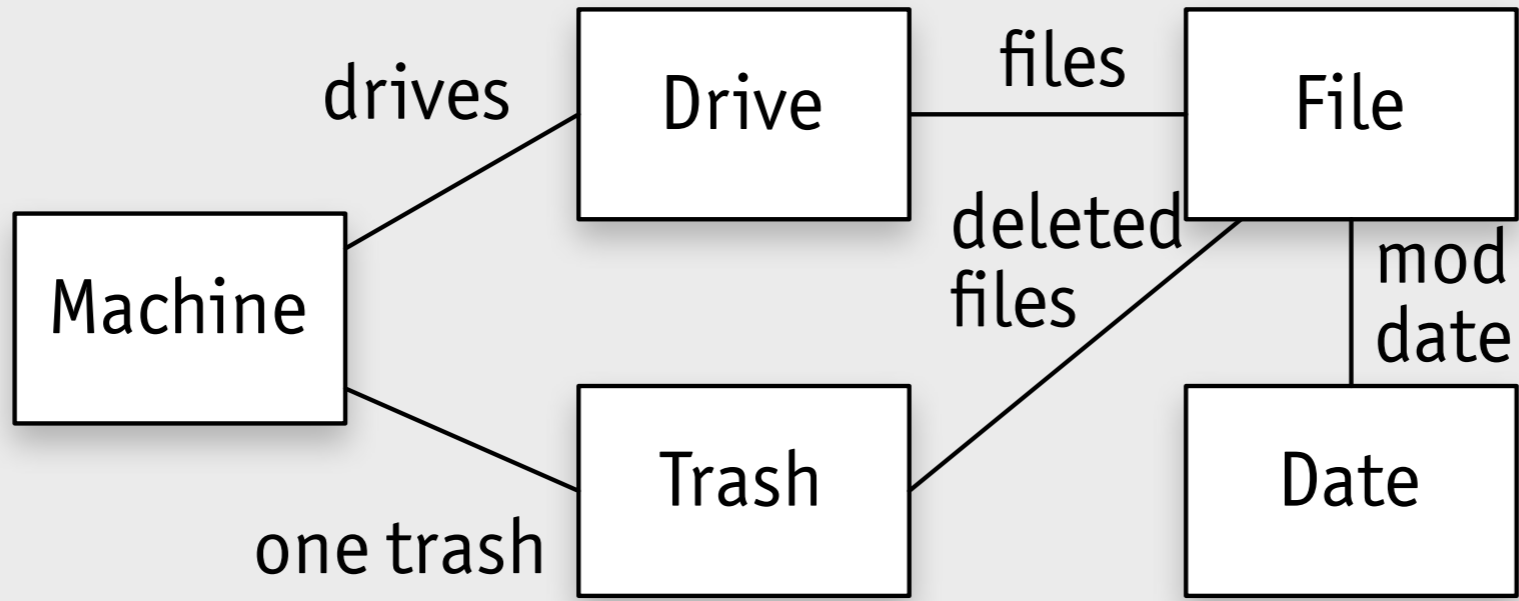
deleting from external drive (eg USB)
can't reuse space until trash emptied

retrieving accidentally deleted files
no date of deletion

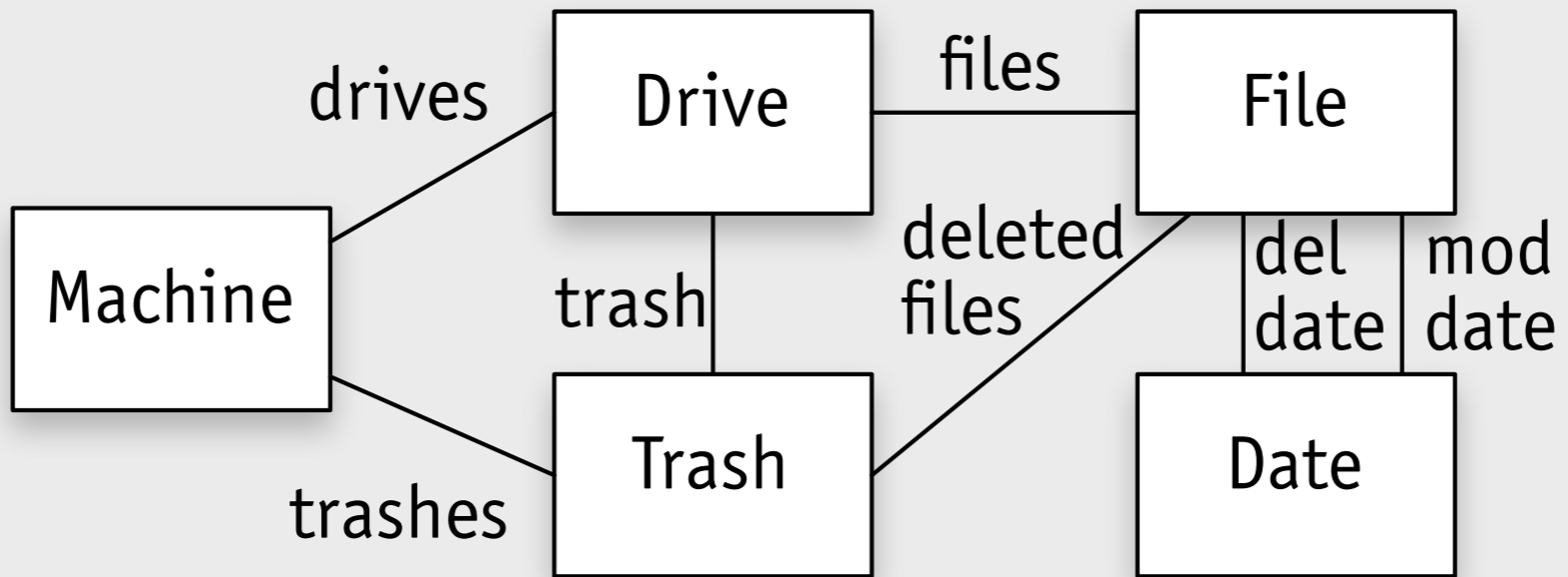
partial emptying
not possible



what exists



what exists

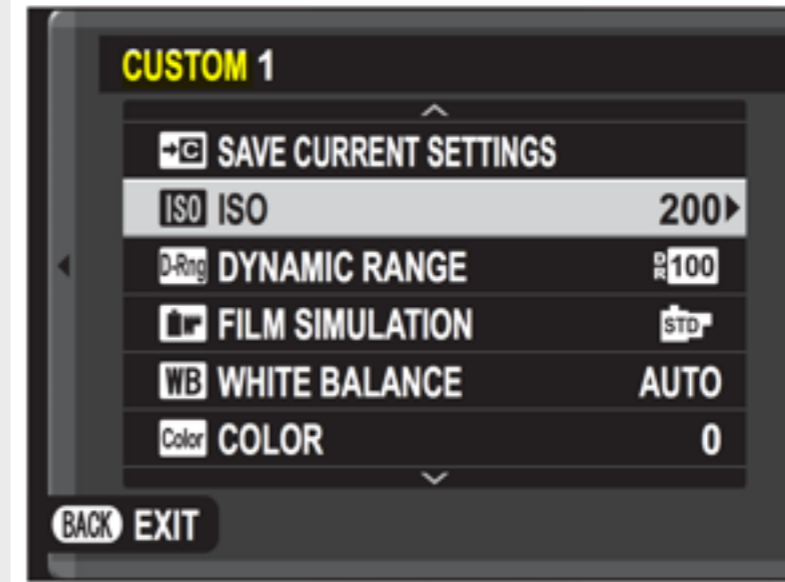
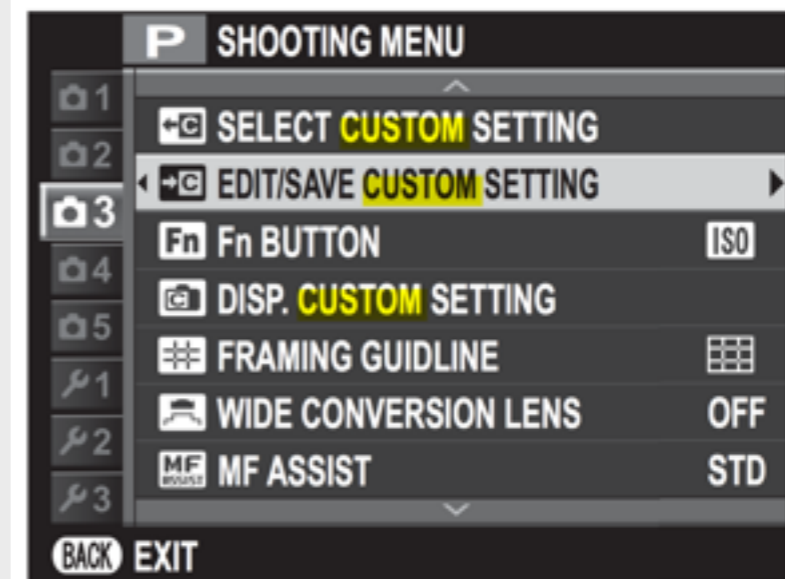


what we need

custom settings in fuji x100s



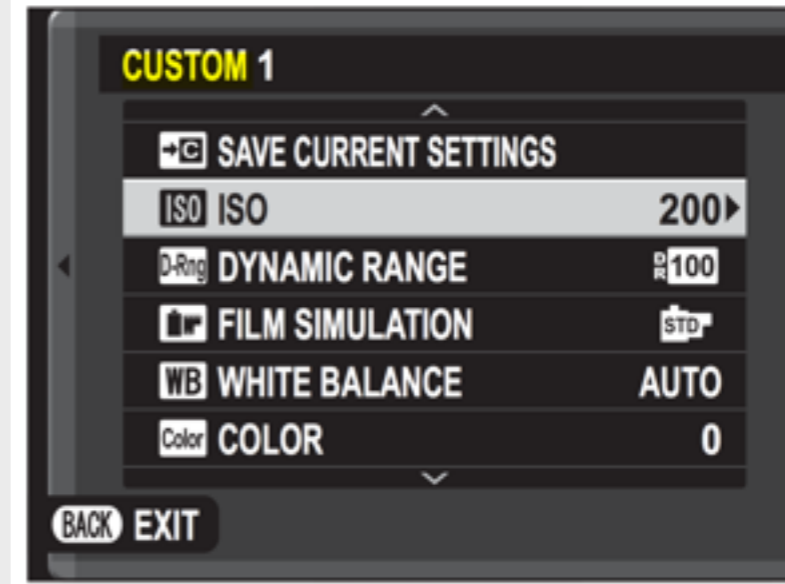
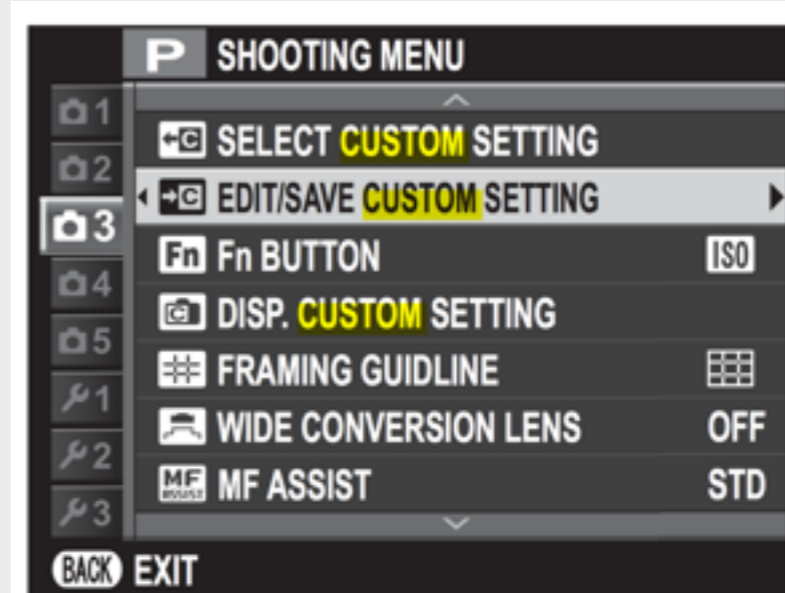
2 Highlight a custom settings bank and press **MENU/OK** to select. Adjust the following as desired and press **DISP/BACK** when adjustments are complete: **ISO** ISO, **D-Rng** DYNAMIC RANGE, **Film** FILM SIMULATION, **WB** WHITE BALANCE, **Color** COLOR, **Sharp** SHARPNESS, **Tone** HIGHLIGHT TONE, **Tone** SHADOW TONE, **NR** NOISE REDUCTION, and **Reset** RESET.



custom settings in fuji x100s

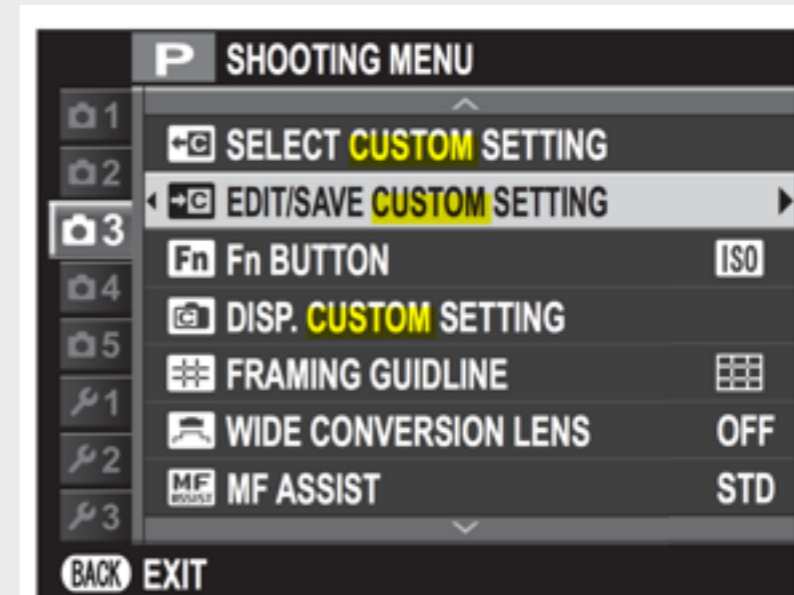


2 Highlight a custom settings bank and press **MENU/OK** to select. Adjust the following as desired and press **DISP/BACK** when adjustments are complete: **ISO** ISO, **D-Rng** DYNAMIC RANGE, **Film** FILM SIMULATION, **WB** WHITE BALANCE, **Color** COLOR, **Sharp** SHARPNESS, **Tone** HIGHLIGHT TONE, **Tone** SHADOW TONE, **NR** NOISE REDUCTION, and **Reset** RESET.

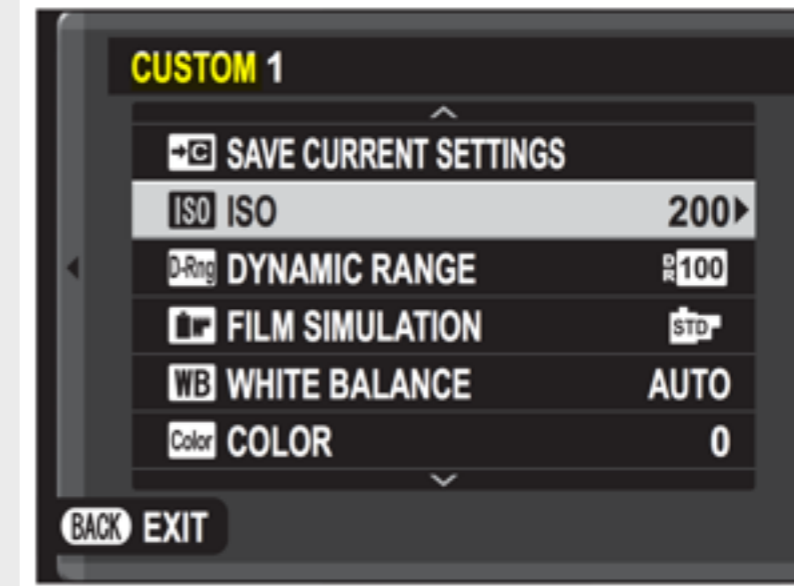


Ken Rockwell review of x100s:

custom settings in fuji x100s



2 Highlight a custom settings bank and press **MENU/OK** to select. Adjust the following as desired and press **DISP/BACK** when adjustments are complete: **ISO** ISO, **D-Rng** DYNAMIC RANGE, **Film** FILM SIMULATION, **WB** WHITE BALANCE, **Color** COLOR, **Sharp** SHARPNESS, **HTone** HIGHLIGHT TONE, **STone** SHADOW TONE, **NR** NOISE REDUCTION, and **Reset** RESET.



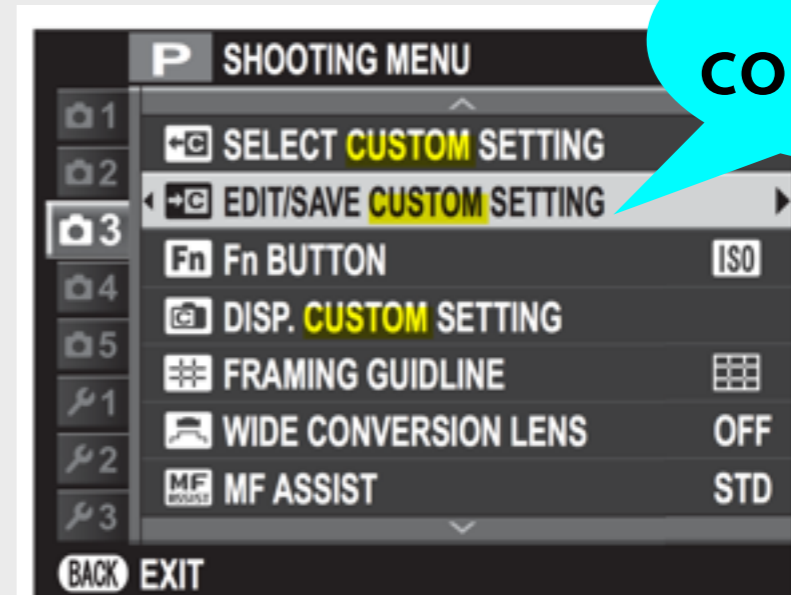
Ken Rockwell review of x100s:

The X100's Custom Settings memories are useless.

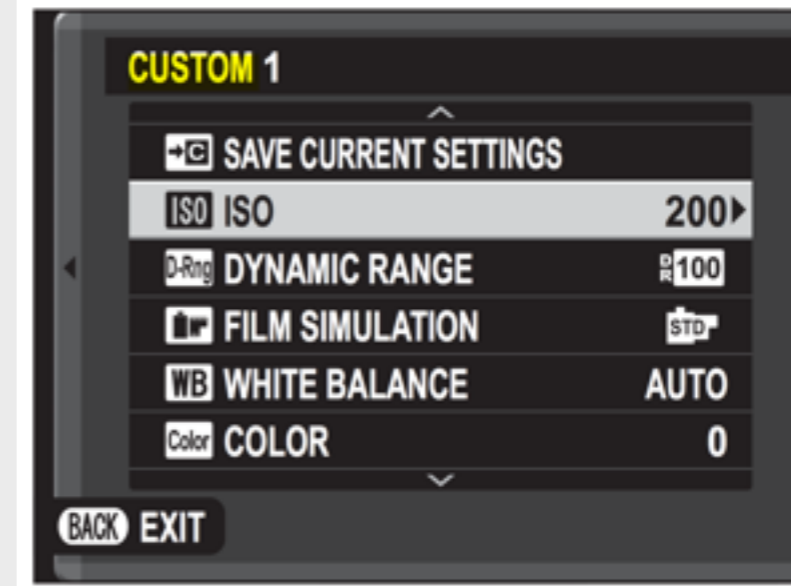
custom settings in fuji x100s



not complete!



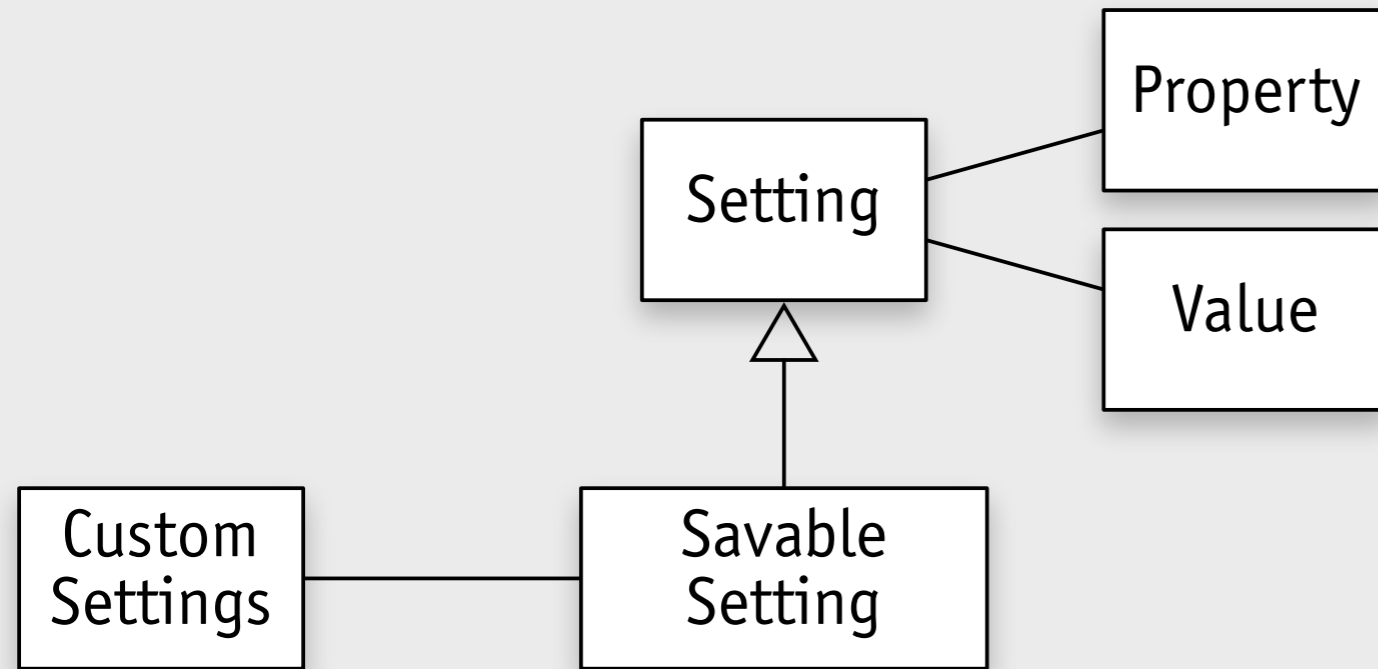
2 Highlight a custom settings bank and press **MENU/OK** to select. Adjust the following as desired and press **DISP/BACK** when adjustments are complete: **ISO** ISO, **D-Rng** DYNAMIC RANGE, **Film** FILM SIMULATION, **WB** WHITE BALANCE, **Color** COLOR, **Sharp** SHARPNESS, **Tone** HIGHLIGHT TONE, **Tone** SHADOW TONE, **NR** NOISE REDUCTION, and **Reset** RESET.



Ken Rockwell review of x100s:

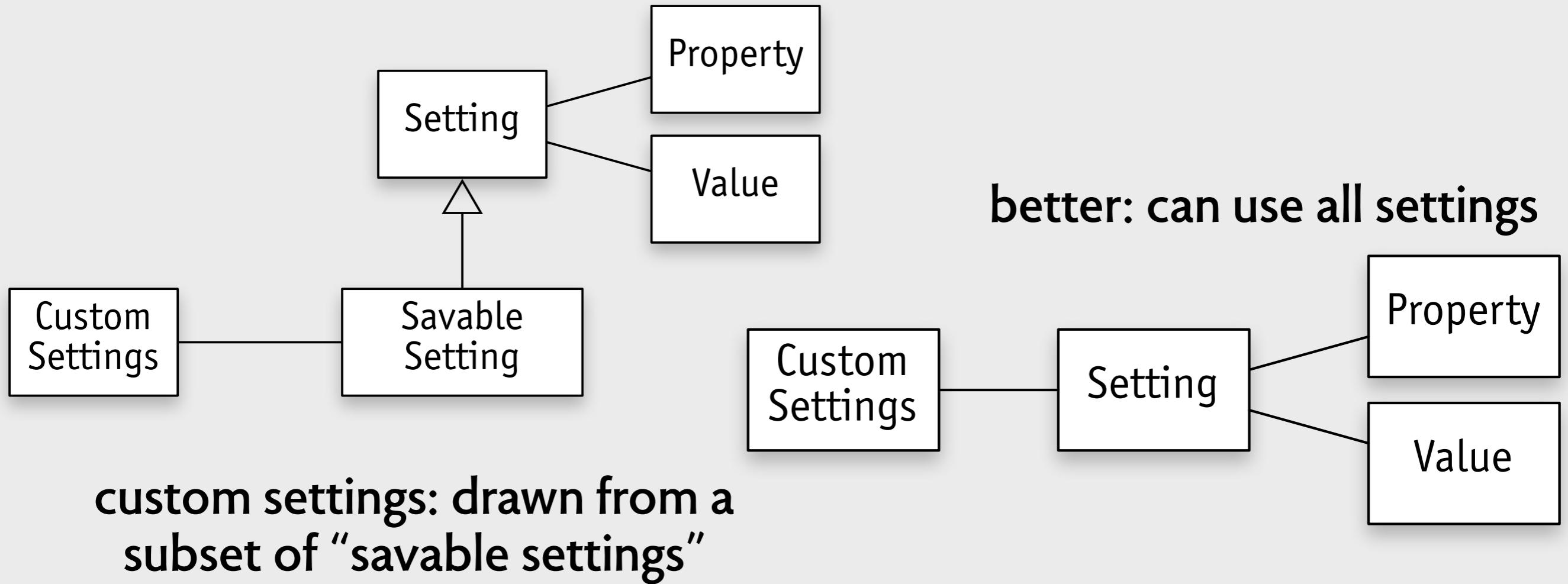
The X100's Custom Settings memories are useless.

fuji x100s concept map

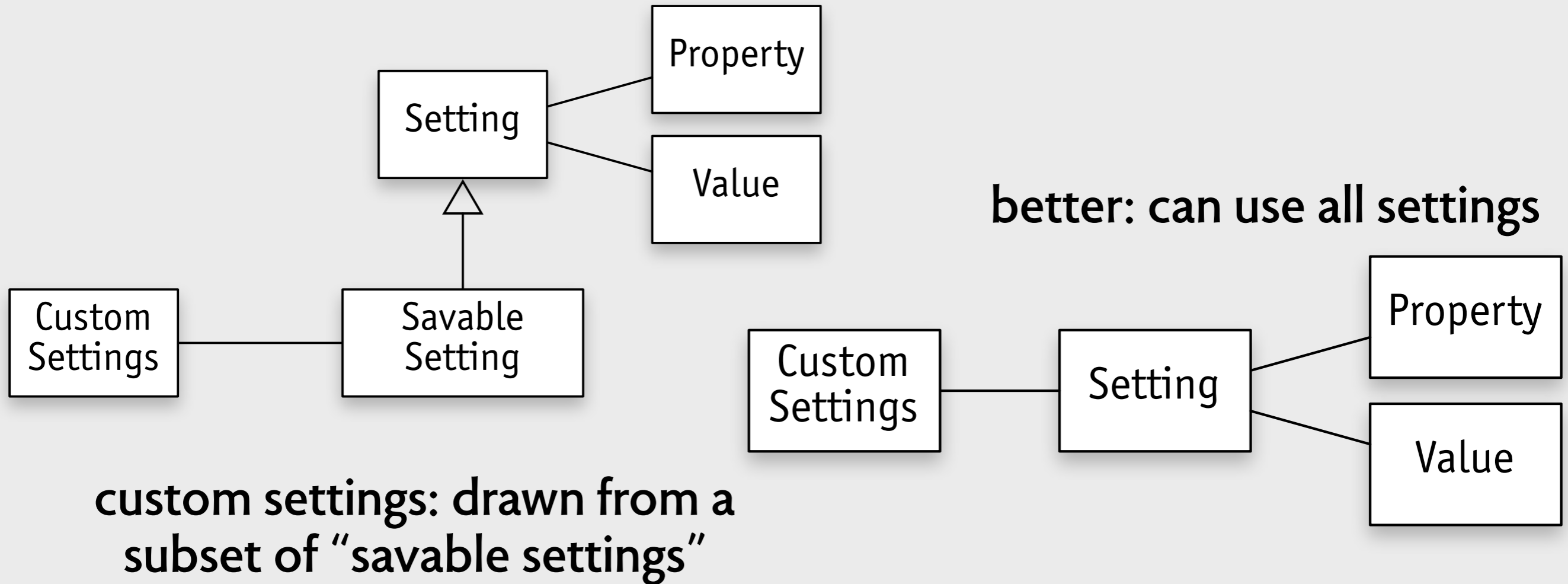


custom settings: drawn from a subset of "savable settings"

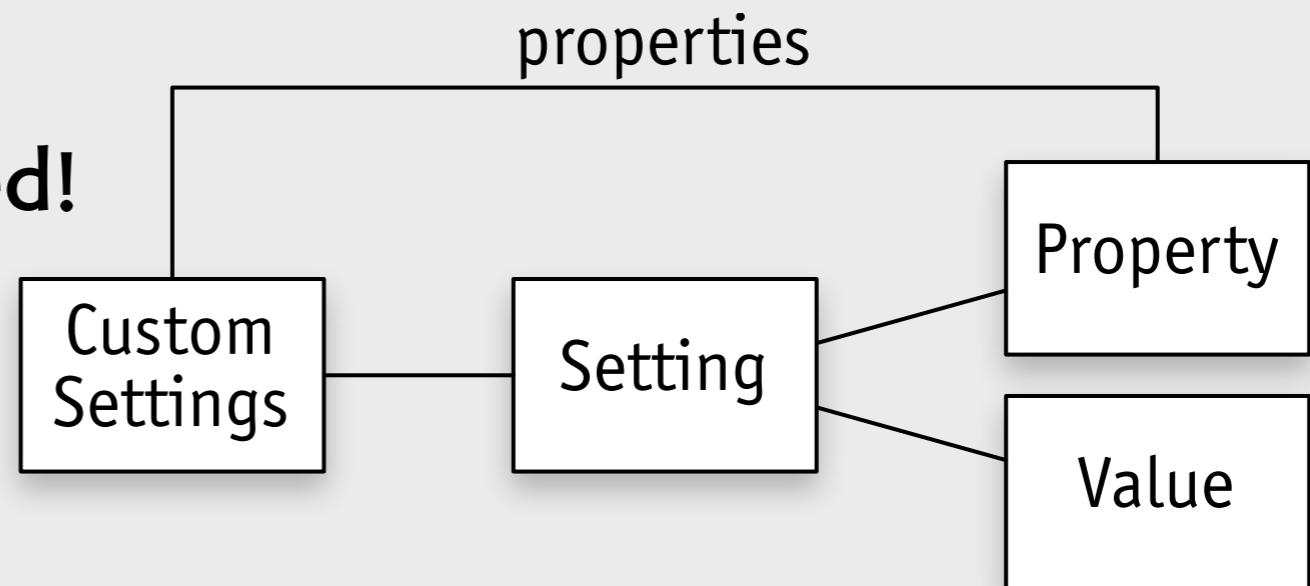
fuji x100s concept map



fuji x100s concept map



best: choose which properties are included!



the broken

two sides of the interface

two sides of the interface



interface

two sides of the interface

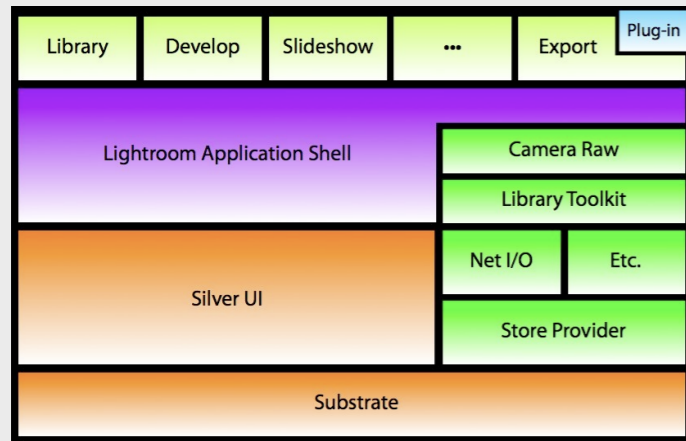


interface



user's model

two sides of the interface



code

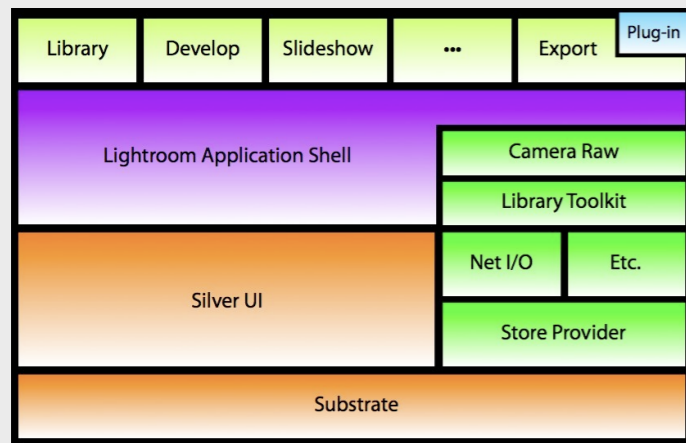


interface



user's model

two sides of the interface



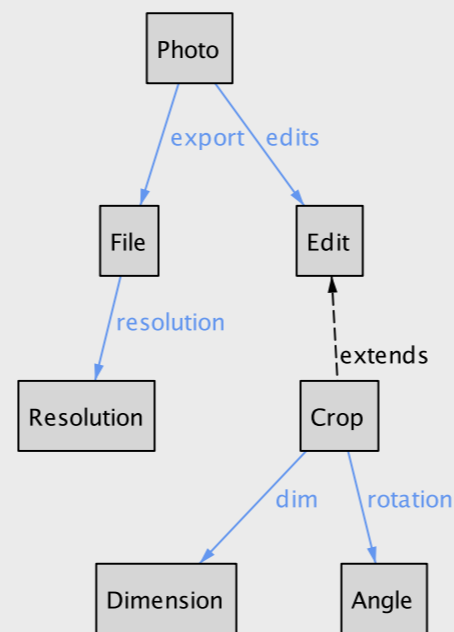
code



interface

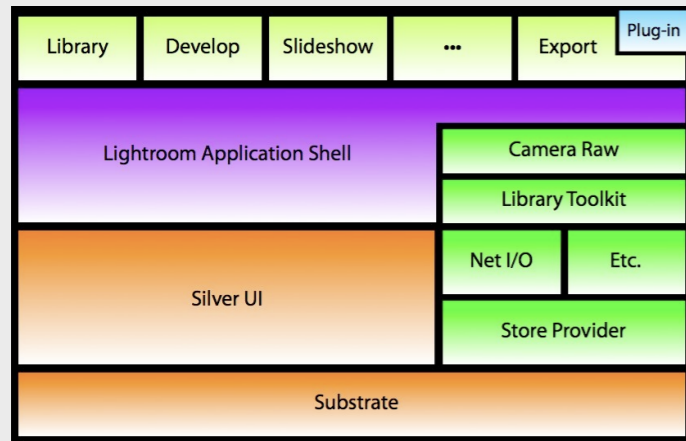


user's model



conceptual model

two sides of the interface



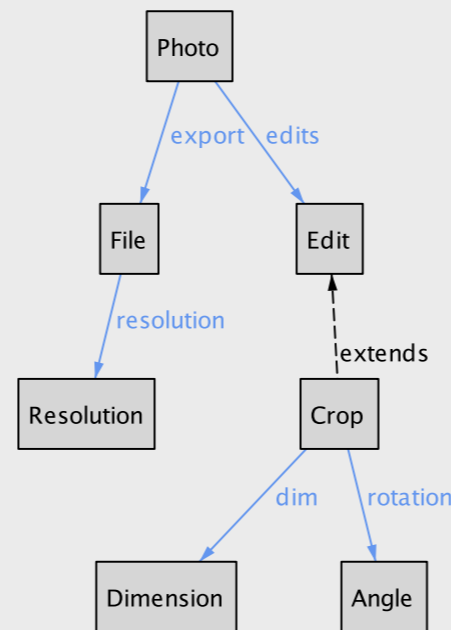
code



interface



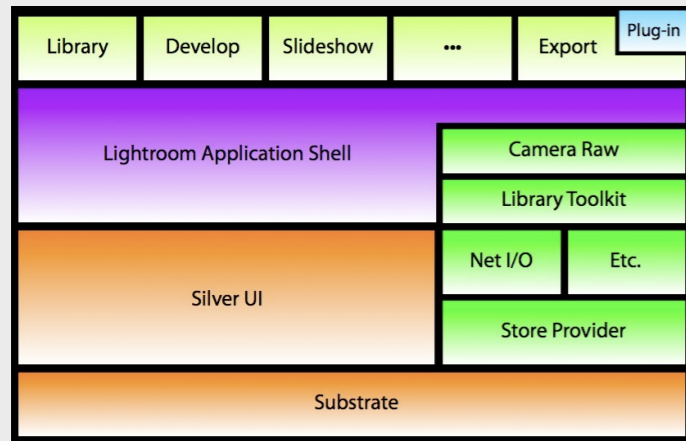
user's model



conceptual model

bad conceptual model: *user is confused*

two sides of the interface



code

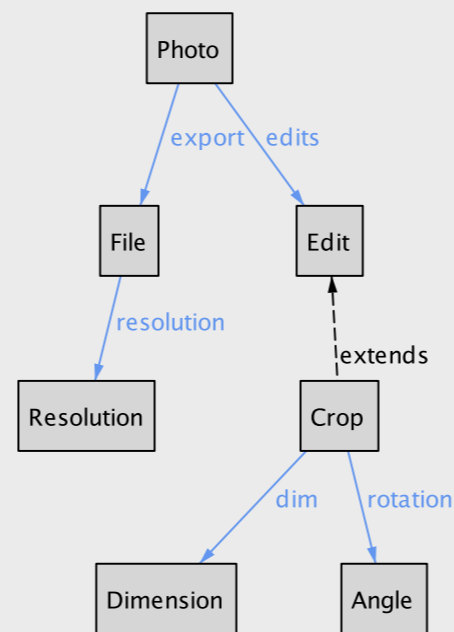


interface



user's model

bad conceptual model: *developer* is confused



conceptual model

bad conceptual model: *user* is confused

gmail labels & filters

The screenshot displays the Gmail interface with a search bar at the top containing the query 'label:starred'. Below the search bar, there are three buttons: a checkbox with a dropdown arrow, a refresh button, and a 'More' button with a dropdown arrow. On the left side, there is a navigation menu with a red 'COMPOSE' button and a list of folders: 'Inbox (838)', 'Starred', 'Important', 'Sent Mail', 'Drafts', 'Personal', 'Travel', and 'More'. The main content area shows two email results, both marked as 'Inbox' and featuring a star icon. The first email is from 'Gmail Team' with the subject 'Welcome to the new Gmail inbox - Hi Daniel Meet the r'. The second email is from 'sanmarin' with the subject 'Service Request Completed for 2404 - Dear Dakota Nar'.

Google

label:starred

Gmail

COMPOSE

Inbox (838)

Starred

Important

Sent Mail

Drafts

Personal

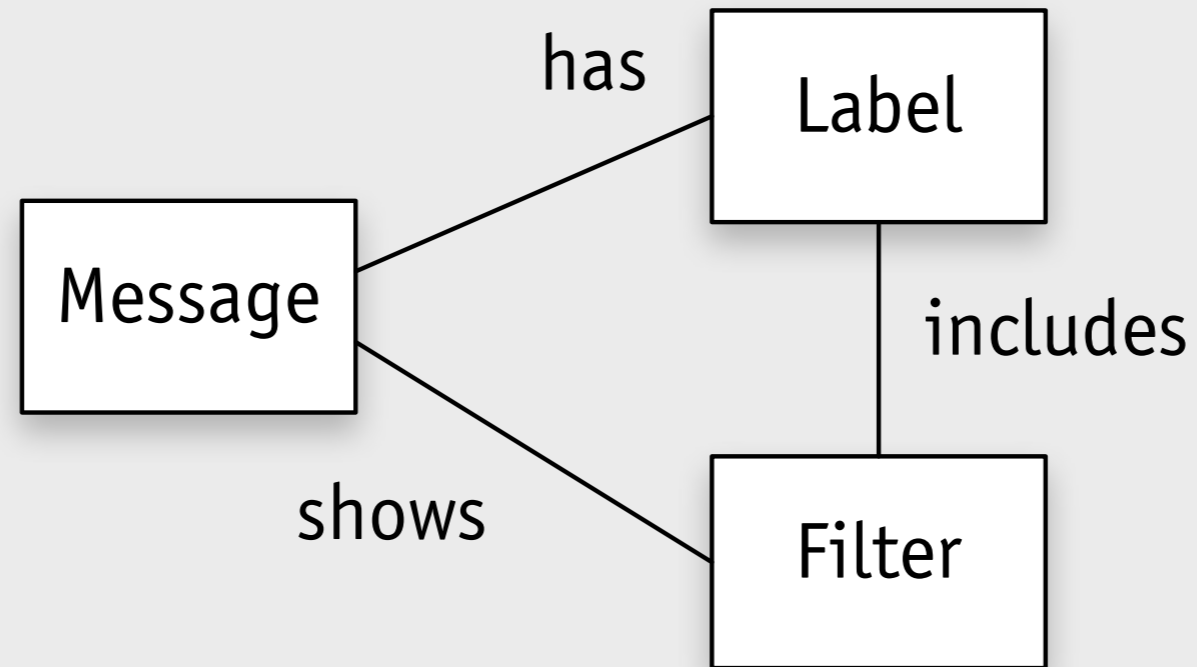
Travel

More

More

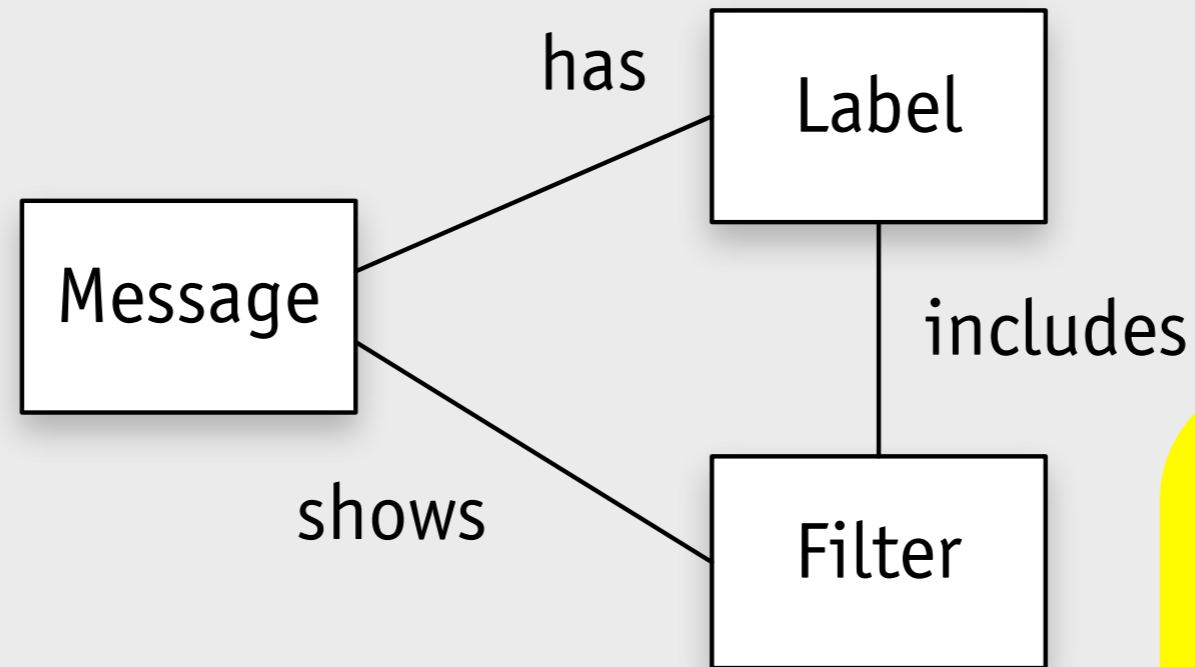
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Gmail Team	Inbox	Welcome to the new Gmail inbox - Hi Daniel Meet the r
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	sanmarin	Inbox	Service Request Completed for 2404 - Dear Dakota Nar

gmail concept map



basic principle:
if message *M* has label *L*,
then search for *L* will show *M*

gmail concept map




basic principle:
if message M has label L,
then search for L will show M

show deleted
messages? no.
what if you *search* for
deleted messages?




A deleted message matches your search. [View it](#) or g

generally won't show trashed messages

 A deleted message matches your search. [View it](#) or g

generally won't show trashed messages

in:trash 



   More 

[Empty Trash now](#) (messages that have been in Trash more than 30 days will b


-   Abbie Bedrock Freight Brokerage, LLC is Interested in You - Now Hiring: Co
-   Amazing Ipad Keyboard Easily Type on Your iPad Quickly and Accurately! - Typing On Your i
-   sanmarin Service Request Completed for 2404 - Dear Dakota Nannette Jackson

label:work label:trash 

   More 

-   Your Job Recommendations Trash Work Receptionist, FT Sr. Assistant Manager, and more! -

if you ask for them explicitly, you'll see *some*

 A deleted message matches your search. [View it](#) or g

generally won't show trashed messages

label:work

not coherent!
conceptual confusion
leads to bugs

hmm...

label:work label:trash

if you ask for them explicitly, you'll see *some*

lessons

how to make better software

how to make better software

early in design

what are the concepts?

how are they connected?

how to make better software

early in design

what are the concepts?

how are they connected?

evaluation of concepts

simple, coherent, usable, complete?

how to make better software

early in design

what are the concepts?

how are they connected?

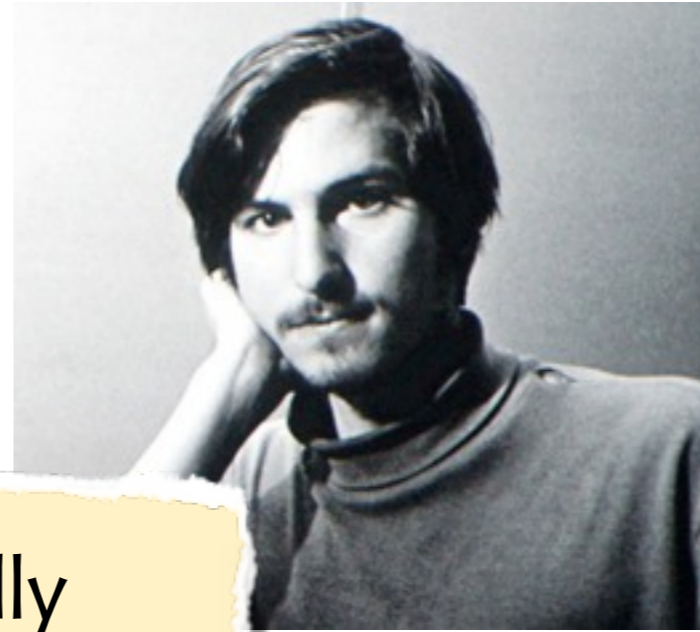
evaluation of concepts

simple, coherent, usable, complete?

when facing a problem

in code or user interface

ask: is this actually a conceptual flaw?



To design something really well, you have to **get it**. You have to really grok what it's all **about**. It takes a passionate commitment to really thoroughly **understand** something, chew it up, not just quickly swallow it. Most people don't take the time to do that.