3 Parts:

Part I: 
The Squeak Project

Part II: 
Squeak: The Language

Part III: 
Squeak: The IDE
About me

Name: Marcus Denker
Student (Computer Science / Karlsruhe)

Squeaker since 1998

Projects:

* Just-In-Time Compiler
* German Squeak Association
* Test Coordinator / Harvester
-> I'm No Ruby Programmer

-> I know nothing about Ruby IDEs:
   (So please tell me "we can do that")

-> So: This will be a Squeak Demo
Part I: The Squeak Project

Content:

* What is Squeak?
  -> Examples

* History
  -> Alan Kay's Dynabook

* Squeak for Kids
  -> Examples
What is Squeak?

1. Multimedia Authoring
2. Programming for Children
3. Operating System?
4. Programming Language
5. Development Environment
6. A Community
Multimedia

* Text and Pictures
* Presentations
* Video
* 3D
Computers, Networks and Education

Globally networked, easy-to-use computers can enhance learning, but only within an educational environment that encourages students to question “facts” and seek challenges.

by Allen C. Kay

The physicist Murray Gell-Mann has remarked that education in the 20th century is like being taken to the world’s greatest restaurant and being fed the menu. What represented actions of ideas have replaced the ideas themselves; students are taught superfluous about great discoveries instead of being helped to learn deeply for themselves.

In the near future, all the representations that human beings have invented will be instantly accessible anywhere in the world on intimate, notebook-sized computers. But will we be able to get from the menu to the food? Or will we no longer understand the difference between the two?

Worse, will we lose even the ability to read the menu and be satisfied just to recognize that it is one? There has always been confusion between carriers and contents. Pianists know that music is not in the piano. It begins inside human beings as a special urge to communicate feelings. But many children are forced to “take piano” before their musical impulses develop; then they turn away from music for life. The piano at its best can only be an amplifier of existing feelings, bringing forth multiple notes in harmony and polyphony that the unaided voice cannot produce.

The computer is the greatest “piano” ever invented, for it is the master carrier of representations of every kind. Now there is a rush to have people, especially schoolchildren, “take computer.” Computers can amplify yearnings in ways even more profound than can musical instruments. But if teachers do not nourish the romance of learning and expressing, any external mandate for a new “literacy” becomes as much a crushing burden as being forced to perform Beethoven’s sonatas while having no sense of their beauty. Instant access to the world’s information will probably have an effect opposite to what is hoped; students will become numb instead of enlightened.

In addition to the notion that the mere presence of computers will improve learning, several other misconceptions about learning often hinder modern education. Stronger ideas need to replace...

ALAN C. KAY has been a fellow of Apple Computer Inc. since 1984. Before joining Apple, he was a founder and fellow of the Xerox Palo Alto Research Center and later chief scientist of Atari. One of the pioneers of personal computing, he is the original designer of the overlapping-window user interface and Smalltalk, the first completely object-oriented language. Kay has worked with children for most of his career. Because, he says, “the media that povertyfully shape our ways of thinking must be made accessible as early in life as possible.” His interests include musical performance and instrument design and “trying to know more about the world.”

STUDENTS at the Open School Center for Individualization, in Los Angeles, are creating a dynamic simulation of ocean life (right) and doing math (above) with the help of Macintosh computers which are not obtrusively into the desks. In the Open School, which already had a strong curriculum before it obtained computers, the machines are not substitute for teachers. There are thought of as “just another material,” like books, paints and clay, that can support the children’s activities. In the next few years, notebook-size
Übersicht Vortrag

Anfang

Inhalt

Inhalt Teil I

Was ist Squeak?

multimedia

Sam's FaceBall

Frag

Inhalt Teil II

Teil II
Video and Audio
Welcome to Squeak-Alice,
an implementation of the Alice 3D authoring tool (http://www.alice.org) in
Squeak. With Squeak-Alice you can build interactive 3D worlds, even if you don't
know anything about 3D graphics. This little demonstration should give you an
idea of what Squeak-Alice can do; read through the comments and follow the
directions. Good luck and have fun!

"Let's start out by moving the bunny. Put the cursor in the line of code
below and hit command-D (alt-D for PC users)."

bunny move: forward.

"The bunny moved forward 1 meter. You can also specify how far to move
actors. Click the undo button to move the bunny back. It is the green button at
the upper left. Do this after every action, then evaluate the next line."

bunny move: up distance: 1/2.

"Note that by default everything in Squeak-Alice animates over 1 second. You
can change this by specifying a duration for animations."

What is Squeak?

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Kid Programming

Sam L.
What is Squeak?

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Squeak: The Language

* completely objectoriented: Everything is an Object
* virtual machine, Bytecode
* Garbage Collector
* Huge Classlibrary
* Example:

100 factorial
* 2D-Graphics
  - TrueType
  - Flash
  - GIF, PNG, JPEG, PCX, XBM
  - Video: MPEG und MJPEG

* 3D-Graphics
  - 3D-Graphics Subsystem
  - VRML import

* Sound:
  - Recording, Playback
  - ADPCM, AIFF, GSM, MuLaw,
  - MP3 decoding
  - FM-Synthesis
  - MIDI

* Networking:
  - HTTP, FTP, POP, SMTP
  - Mailreader, Webserver
  - Groupware-features:
    - Chat (voice, text)

* Misc:
  - Digital Signatures
  - Compression: ZIP, gzip
  - Postscript export
- Windows 2000
- Windows NT
- Windows 95
- Windows 98
- Windows CE
- DOS
- Macintosh
- OS/2
- Acorn
- BeOS
- Linux/i386
- Linux/PowerPC
- Linux/Sparc
- SunOS
- Solaris
- SCO System V
- Rhapsody/Next Step
- DigitalUnix/Alpha
- NetBSD/Sparc
- NetBSD/i386
- Psion 5
- Zaurus

- Embedded Squeak
- Netscape Plugin
- IE-Plugin (Squeak as ActiveX Control)
- Multilanguage Squeak
- Bootable Squeak
- Goodies
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Development Environment

* ClassBrowser:

* Inspector:
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The Squeak Community

* Developers:
  - Mailinglist (~ 1000 members)
  - SqueakNic

* Teachers and Parents:
  - Squeakland.org and mailinglist

* Germany:
  - Squeak Deutschland e.V.
    (German Squeak Association)
* Alan Kay 1968: The Dynabook
  "A Dynamic Medium for Creative Thought"

* Xerox PARC 1970 - 1980
  - GUI
  - Smalltalk

* Squeak started 1996
  (Apple, Disney, now HP)
The Dynabook

Alan Kay: "Ideaprocessor Vs. Wordprocessor"
Squeak for Kids

* simple, graphical scripting: eToys

* Example 1: Drive a Car

* Example 2: Lunar Lander

* Example 4: Underwater World
Your Own Lunar Lander Game

- **ship gravity**: paused
- **ship's ySpeed increase by**: ➩ -0.7
- **ship's y increase by ship's ySpeed**

- **ship motor**: paused
- **ship's ySpeed increase by Joystick2's upDown**

- **flame on**: paused
- **Joystick2's upDown**: ➩ 0.0
  - **flame's x** ➩ ship's x
  - **flame's y** ➩ ship's y
  - flame show
  - flame hide

- **ship land**: paused
- **ship's color**: sees color
  - **ship's color**: ➩ 0
  - **flame hide**
  - ship hide
  - ship make sound ➩ splash
  - crash show
  - ship allProcesses pause

- **ship allProcesses pause**: normal

- **ship reveal**: normal
  - ship reveal
  - crash show
  - flame show

- **ship**: ySpeed ➩ 0.0
- **ship**: x ➩ 70.0
- **ship**: y ➩ 260
- **ship**: ySpeed ➩ 0
- **ship show**
- flame hide
- crash hide

- **stop**
- **step**
- **go**

- **ship reset**
Part II: Overview

* Squeak: The Language
  - Smalltalk in 2 minutes
  - Demo: Browser
  - Demo: MethodFinder
Smalltalk in 2 minutes

* reserved words: (pseudo-variables):
  self super thisContext true false nil

* Literals:  1 1.1 'String' #('ein' 'array') #symbol

* Blocks:    [:param | code] [1]

* Assignment: a := 1

* Methods:   | lokale Variablen |
              ^ Ergebnis

* Methode call:  3 raisedTo: 4
Beispiele

(1 < 2) if True: ['wahr'] if False: ['falsch'].

(1 2 3 4) + 3

(1 2 3 2 4) select: [:each | each > 2].

(1 2 3 4) collect: [:each | each class].

(1 1.1 'hallo') do: [:each | each class browse].

(1 2 3 4 5 6) inject: 0
    into: [:sum : each | sum + each].