Why Are Words Important?

- Connection between language and thought
  - 1984 and Newspeak
  - Wine appreciation
- Communication with others
  - "The cup holder on my PC is broken!"
  - Where is the computer?

* [http://www.rinkworks.com/stupid/](http://www.rinkworks.com/stupid/)

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Where Is The Computer?

- Monitor
- Mouse
- Keyboard
- Computer case houses CPU (Central Processing Unit), power supply, DVD drive, etc

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Motherboard

- Circuit board containing most of the circuitry of a personal computer (PC) system
- Contains the CPU (central processing unit)—the part that does the computing
- Can extend functionality via daughterboards (more often called: cards)

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Buying A Computer

- What are you looking for in a computer?
What Do All These Words Mean?

- How do you find out what these words mean?
  - Search online: Wikipedia, Google, etc…
  - Is the information reliable? (Future lecture)
  - Ask others

- Are they all important?
  - Not really, but there are some basic terms you should be familiar with.

Wiki

- **wiki**: page or collection of web pages designed to enable anyone who accesses it to contribute or modify content
  - "wiki wiki" means "quick" in Hawaiian

On Again, Off Again

- **boot**: start a computer
- **reboot** (or **power cycle**): restart a computer; turn off and then on again

Hardware and Software

- **hardware**: physical devices
- **software**: computer programs (instructions for a computer)

Operating System

- **operating system (OS)**: infrastructure software component of a computer system responsible for management and coordination of activities (e.g., operating the hardware) and the sharing of the limited resources (e.g., memory) of the system
Operating System (cont'd)

- Examples:
  - Windows
  - Mac OS
  - Linux
  - Solaris

- Not limited to desktop and laptop computers: video game consoles, handheld devices (e.g., cell phones), etc...

Hard Drive vs. Memory

- **hard drive**: persistent storage
  - Data does not disappear after you turn off the computer
  - "Long-term memory"

- **memory**: where programs and their data reside while in use
  - Data not saved will be lost if the computer crashes
  - Also called RAM (Random Access Memory)
  - "Short-term memory"

Byte

- **byte**: unit of measurement of information
  - Similar to gram for mass and watt for power
  - Use with standard prefix multipliers: kilobyte (KB), megabyte (MB), gigabyte (GB), terabyte (TB), petabyte (PB), etc...
    - kilo: 1,000
    - mega: 1,000,000
    - giga: 1,000,000,000
    - tera: 1,000,000,000,000
    - peta: 1,000,000,000,000,000
  - For more information, see: http://searchstorage.techtarget.com/sDefinition/0, sid5_gci499006,00.html

Byte (cont'd)

- How much information is in a byte?
  - To be addressed in a future lecture

- How much hard drive space do you need?
  - Depends on how you use your computer
    - 20-page English essay ~ 120 KB
    - Song ~ 5 MB
    - 30-minute TV episode ~ 200 MB
    - Compressed movie ~ 800 MB
    - DVD-quality movie ~ 4 GB

Byte (cont'd)

- How much memory do you need?
  - Depends on how you use your computer
  - More RAM means more programs can be run simultaneously. Can also run more data-intensive software.
  - Running too many programs with not enough RAM will result in the computer grinding to a halt (or running painfully slow)
  - For most people (in 2009), 1-2 GB is sufficient.

Need For Speed

- **clock rate (or clock speed)**: fundamental rate in cycles per second (measured in hertz) at which a computer performs its most basic operations such as adding two numbers
  - Use with standard prefix multipliers: megahertz (MHz) and gigahertz (GHz)

  - Comparisons only useful between computer chips in the same processor family
    - For example, clock speeds of an Intel 486 CPU is not directly comparable to a MIPS R4000.*

  - Without knowing anything about processor families, 2.0 GHz or more should be fast enough for most people (in 2009).
    - My computer (1.6 GHz) could be faster, but it gets the job done.

*The processor family names are not important. You only need to know them if you really want the latest and greatest.
**Video**

- **video card** (or **graphics card**): hardware component responsible for generating and outputting images to a display (e.g., monitor or TV)
- **pixel**: smallest displayable unit in an image (short for **picture element**)
  - Factoid: In 3-D, the smallest unit is a **voxel** (volumetric pixel)

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**Resolution**

- **resolution**: number of pixels in each dimension that can be displayed, specified as width x height
  - Examples:
    - 1280x1024
    - 640x480
    - 1024x768 (maximum resolution of many projectors)

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**Peripheral**

- **peripheral**: external device connected to a computer whose functionality is dependent upon the computer
  - Examples:
    - printer
    - scanner
    - speaker
    - external hard drive

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**USB vs. FireWire**

- In the "old days", peripheral devices (such as printers, mice, and keyboards) each required special sockets.
- USB and FireWire standardized the interfaces.

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**Drive**

- **drive**: device that reads data and often writes data onto a storage medium
  - Examples:
    - hard drive
    - CD-ROM drive
USB Flash Drive

- **USB flash drive**: portable rewriteable data storage device with a USB interface.
- Also known as USB stick, thumb drive, or simply flash drive.

Device Driver

- **(device) driver**: program that allows other programs to interact with a hardware device.