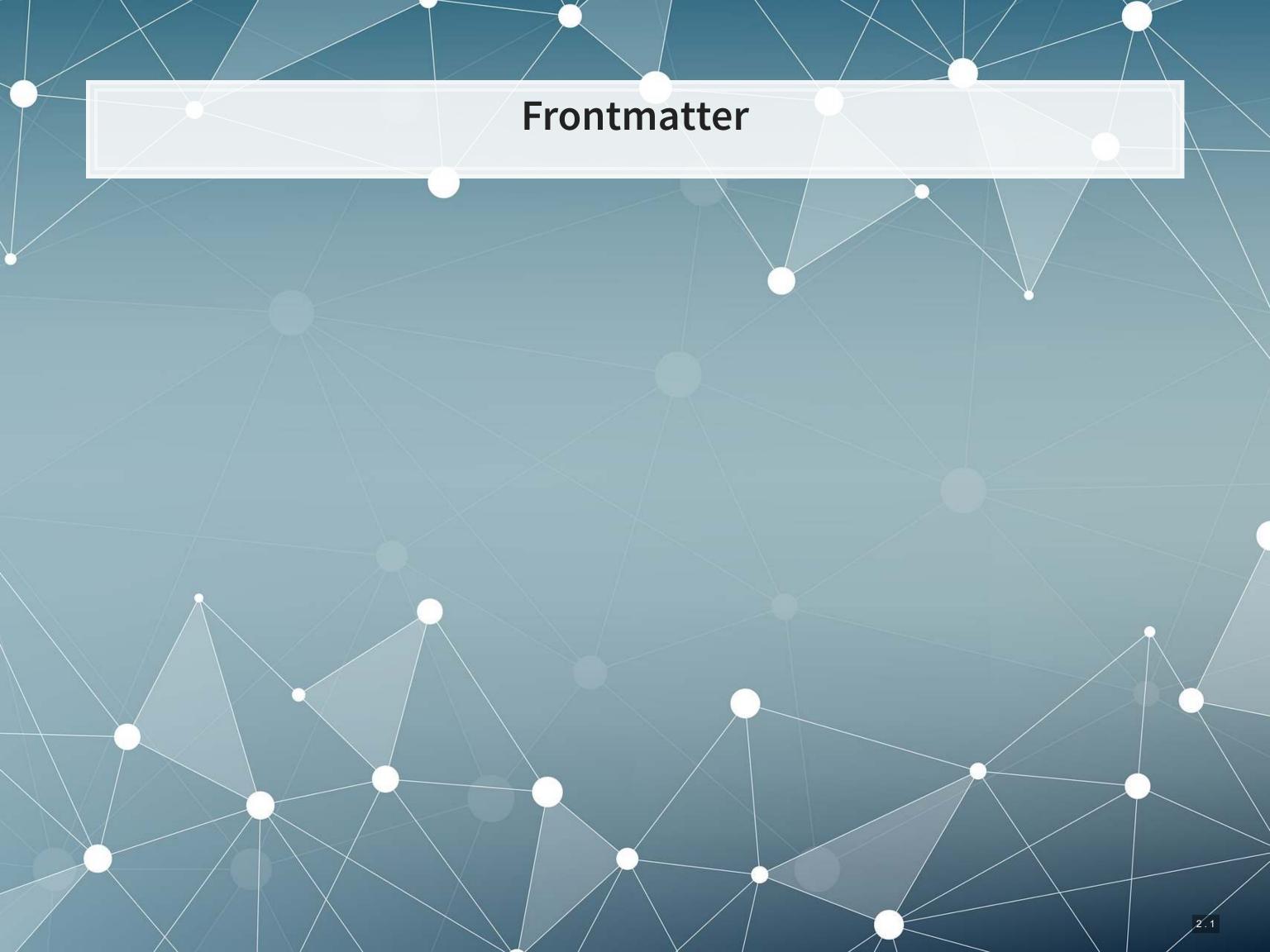
# ACCT 101: Bookkeeping, accruals, and adjusting

Session 2

Richard M. Crowley

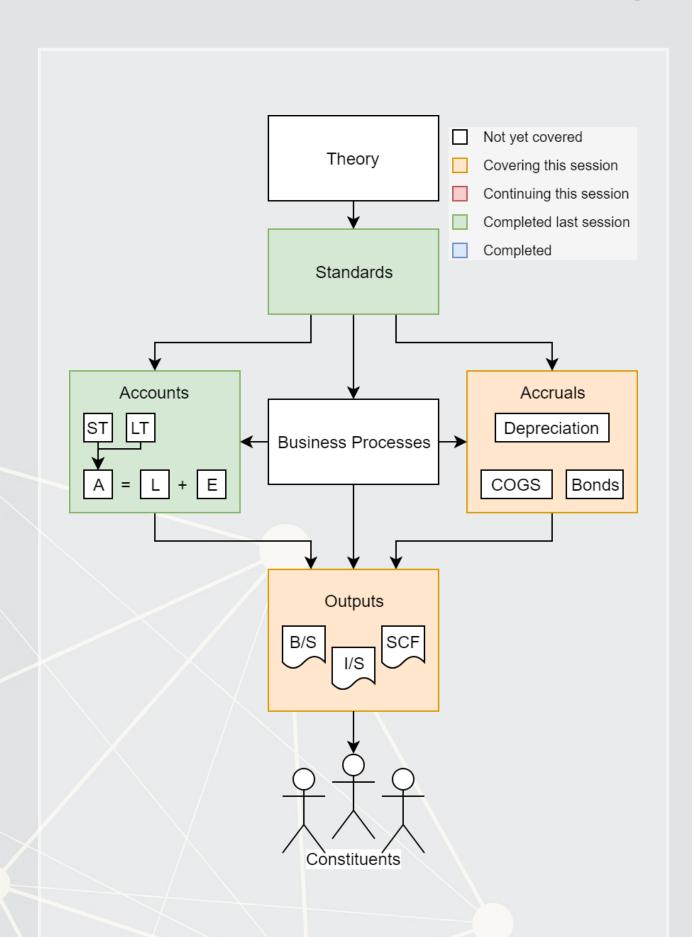


#### **Frontmatter**

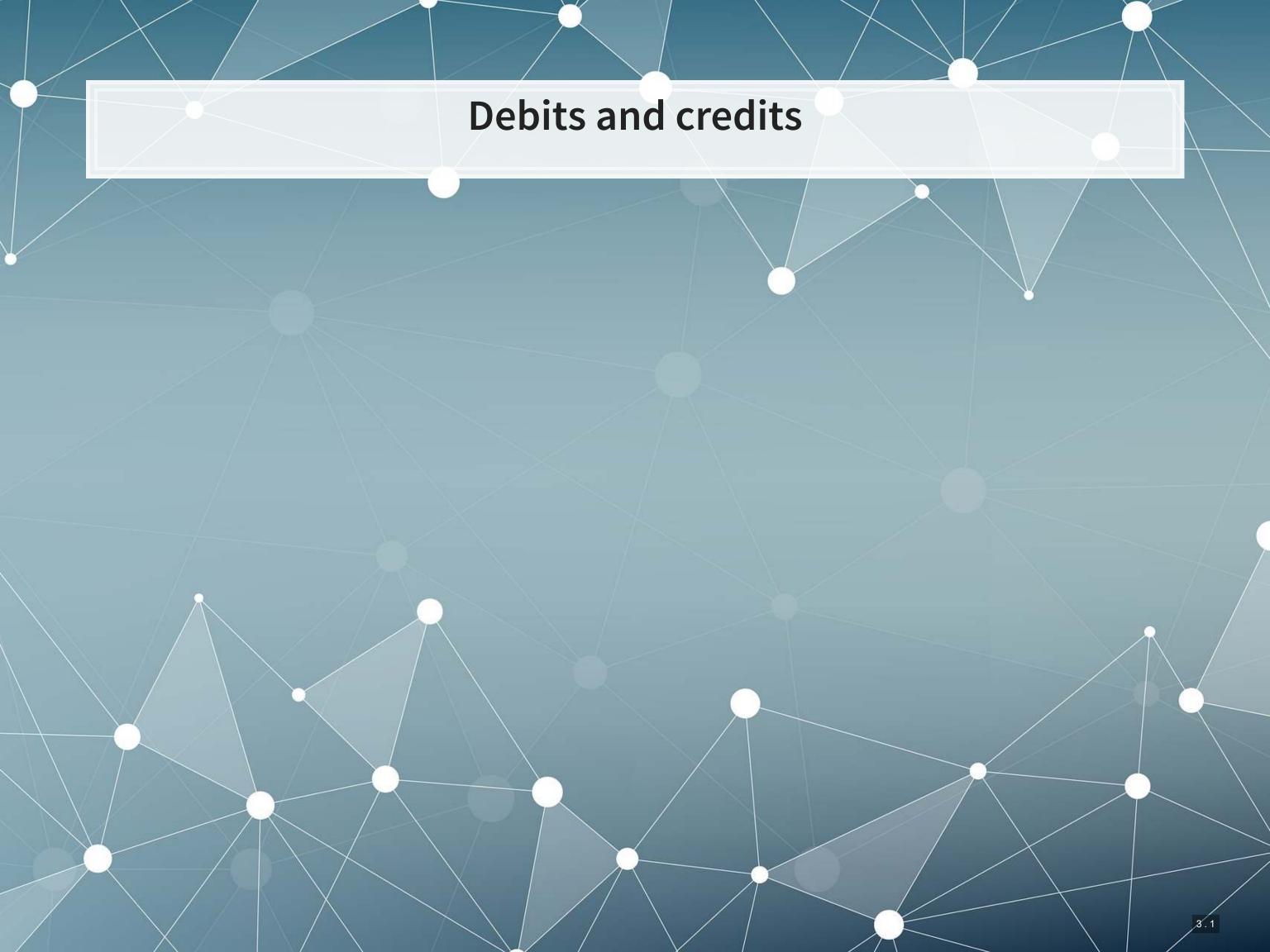
- Homework 1 due next week
  - Available on eLearn
  - Submit on eLearn
- Covers topics from today's session



# Learning objectives



- Bookkeeping (Chapter 2)
  - 1. Understand how accounting works
  - 2. Record transactions in the journal
  - 3. Construct a trial balance
- Accruals and Adjustments (Chapter 3)
  - 1. Relate accrual accounting and cash flows
  - 2. Apply the revenue and matching principals
  - 3. Adjust accounts



# History: Before double entry

- 8500 BCE: Shaped clay tokens represent commodities
- 200 BCE: Arabic numerals (except 0)
- 600 CE: 0 developed
- 800 CE: 10-digit numerals spread throughout Europe





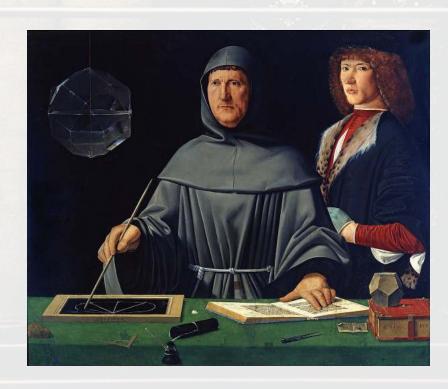
MS 4631 Bulla-envelope with 11 plain and complex tokens inside Near East, ca. 3700-3200 BC

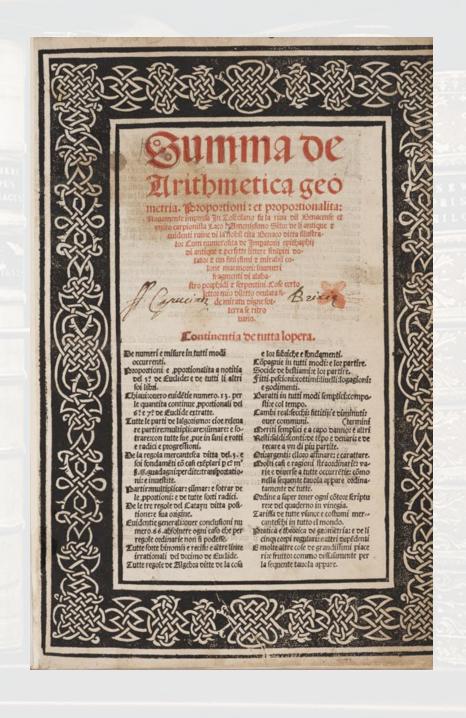
http://www.schoyencollection.com/mathematics-collection/preliterate-counting/bulla-envelope-ms-4631

\*Note: This slide is based on a history lecture by Dr. Pierre Liang at Carnegie Mellon from October 2017

# History: Double entry

- 1400s CE: First evidence of double entry accounting in Italy
- 1494 CE Italian monk and scholar Luca Pacioli publishes first text on double entry bookkeeping
  - Summa de Arithmetica, Geometria,
     Proportioni et Propotionalita





# History: Journal entries

#### (1491)

- 7. Faro debetore Tomasone del Buono e creditore spese di mercanzie di s. iiij d'oro per spese fatta a un fardello di panno corsato mandato da Lucca da Bonaccorsi a Libro 203/100 lib—siiij d—
- 7. I make debtor Tomaso del Buono and creditor Merchandise Expenses for 4 s. in gold, for expenses incurred on a bale of cloth sent by Lucca da Bonaccorsi in the book 203/100 lib.

  —84d—

(1558)

 Devonshire Kerseys is debitor to Laurance Fabian, draper, and is for 10 pieces at 36 s. a piece—etc.—L. 108 s—d(1570)

14. Roggen soll an Hering, hab ich mit Audreas Klur von Thorn einen stick getroffen—etc.

fl. 472,15--

(1595)

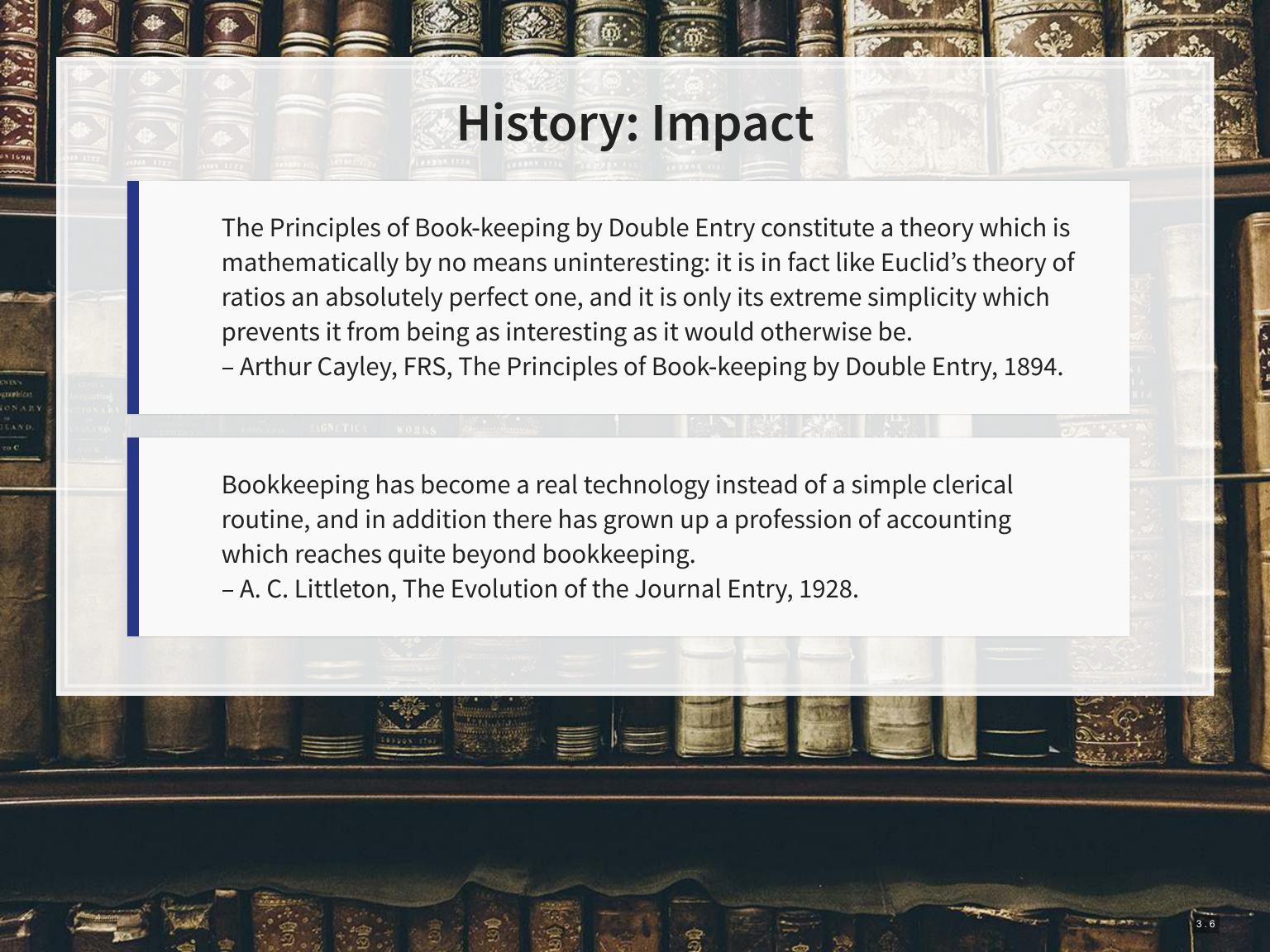
- 11. Cassa van ghereden ghelde is schuldich aen Cappital van my 8000 guld. Ende is voor verscheyden penninghen van gout ende silver, so ick in mynen handen hebbe, omme daermede te dryuen den handel van coopmanchap. Godt wil my verleenen ghewin, ende behaeden voor verlies. Amen...g. 8000
- 14. Rye owes to Herring, which I have bartered with Audreas Klur of Thorn—etc...fl. 472.15
- 11. Ready money is indebted to Capital for my 8000 guilders. And is for different coins of gold and silver that I have in hand to use in pursuing the trade of merchandise. God will grant me profit and preserve me from loss. Amen...g. 8000

Images from Littleton 1928 TAR.



(8)
English Journal Entries After 1600 (1684)
19. George Pinchback Debitor to Kettles £75-8d for 5 barrels—etc. ..... (1717)20. P. Q. at Gibraltar my accompt current Debtor to Voyage to Gibraltar, consigned to P. Q. £822.9.7½—etc.....822/9/7½ (1754)21. William Wife £360 to Sherry for 10 pipes delivered to him in barter..... 22. Charges merchandise Dr. to paper taken for use in shop..... Dr. Mdse. 1000 Cash 500 24. Cash to Sundries 1590 to Bills Receivable 1500 Profit and Loss (1864)Cr. 25. Merchandise Dr. to James Munroe **5000** 26. Merchandise 400

Shakespeare likely did this sort of work for the British Navy! (Source: Reynolds 1974 JAR)



# ← Debit | Credit →

Debits

on

the

left

Credits

on

the

right

Memorize this!

This is double entry accounting

#### **Debits and credits**

#### Debits (DR)

- Increase assets
- Decrease liabilities
- Decrease equity
  - Decrease revenue
  - Increase expenses

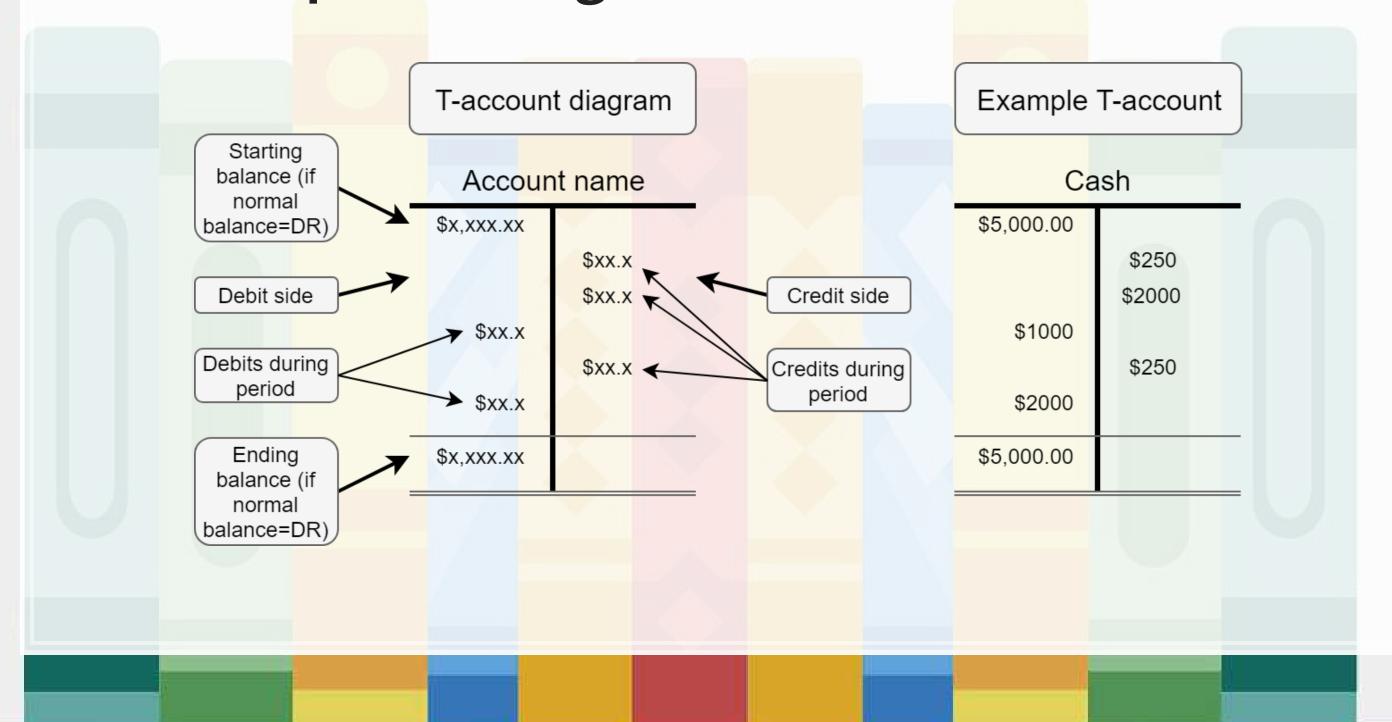
#### Credits (CR)

- Decrease assets
- Increase liabilities
- Increase equity
  - Increase revenue
  - Decrease expenses

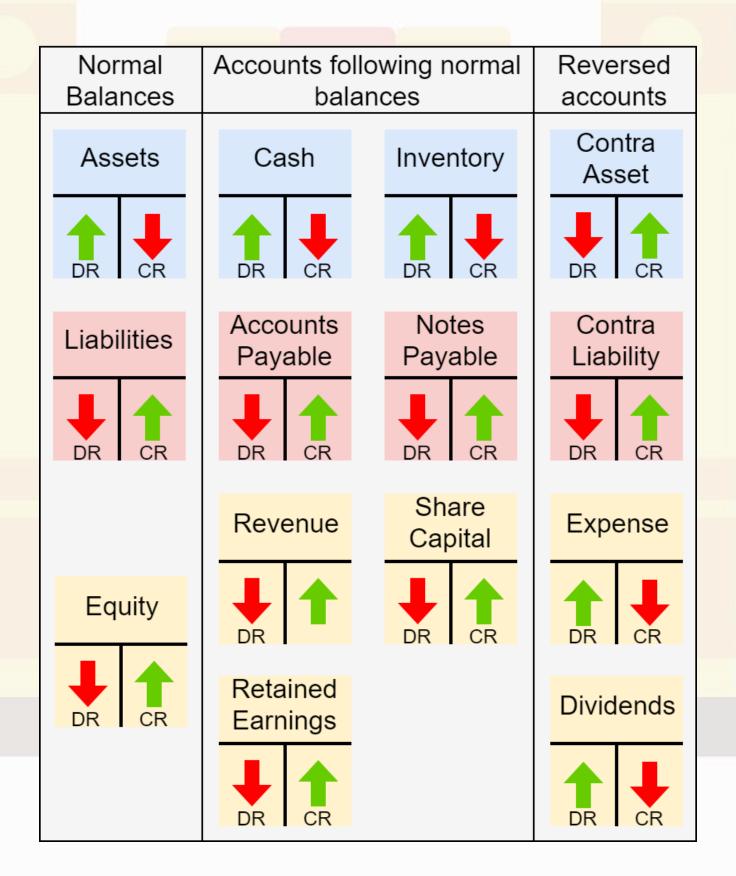
The side of an account that increases its balance is called the account's *normal balance* 

Debits always equal credits for a transaction

### Representing accounts: T-accounts

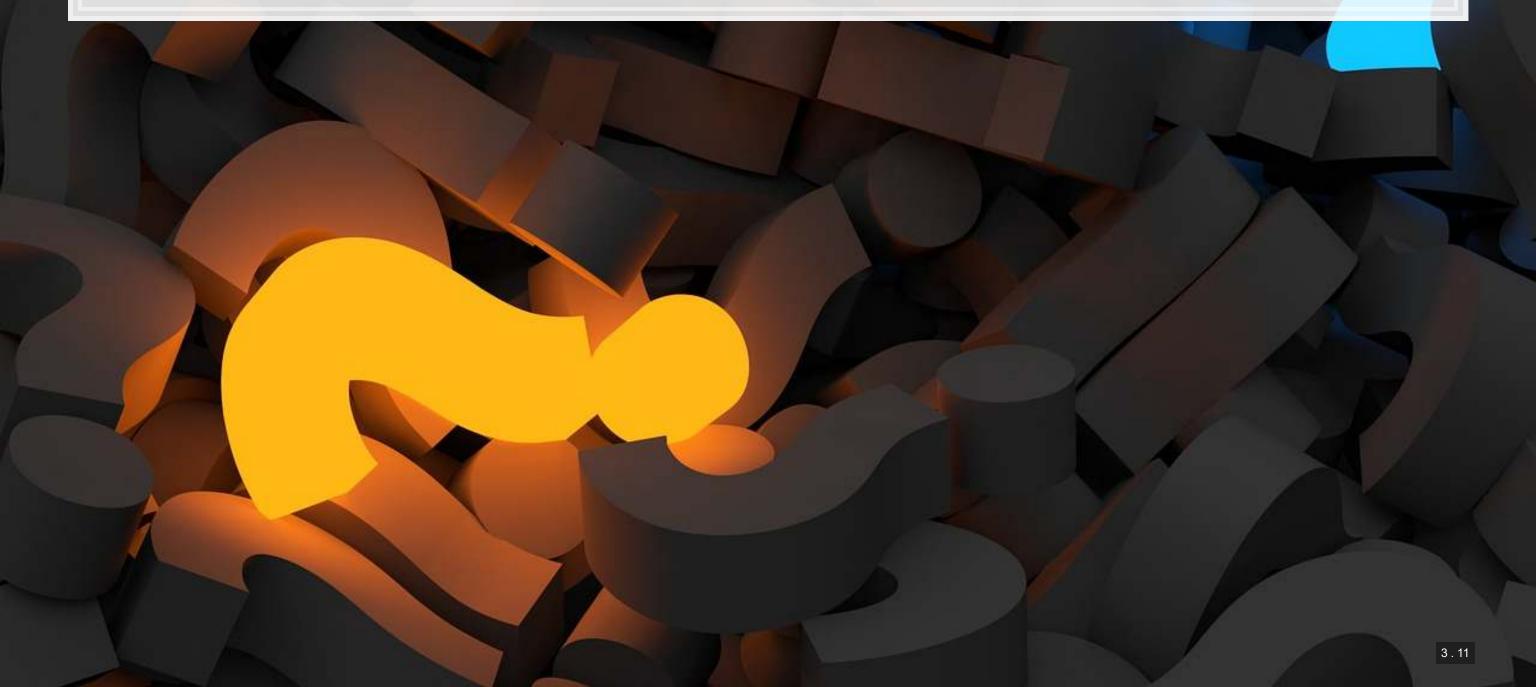


#### Normal balances





- 1. Where do debits go?
- 2. Where do credits go?
- 3. What do debits equal?
- 4. What do credits equal?



#### **Review: Debits & credits**

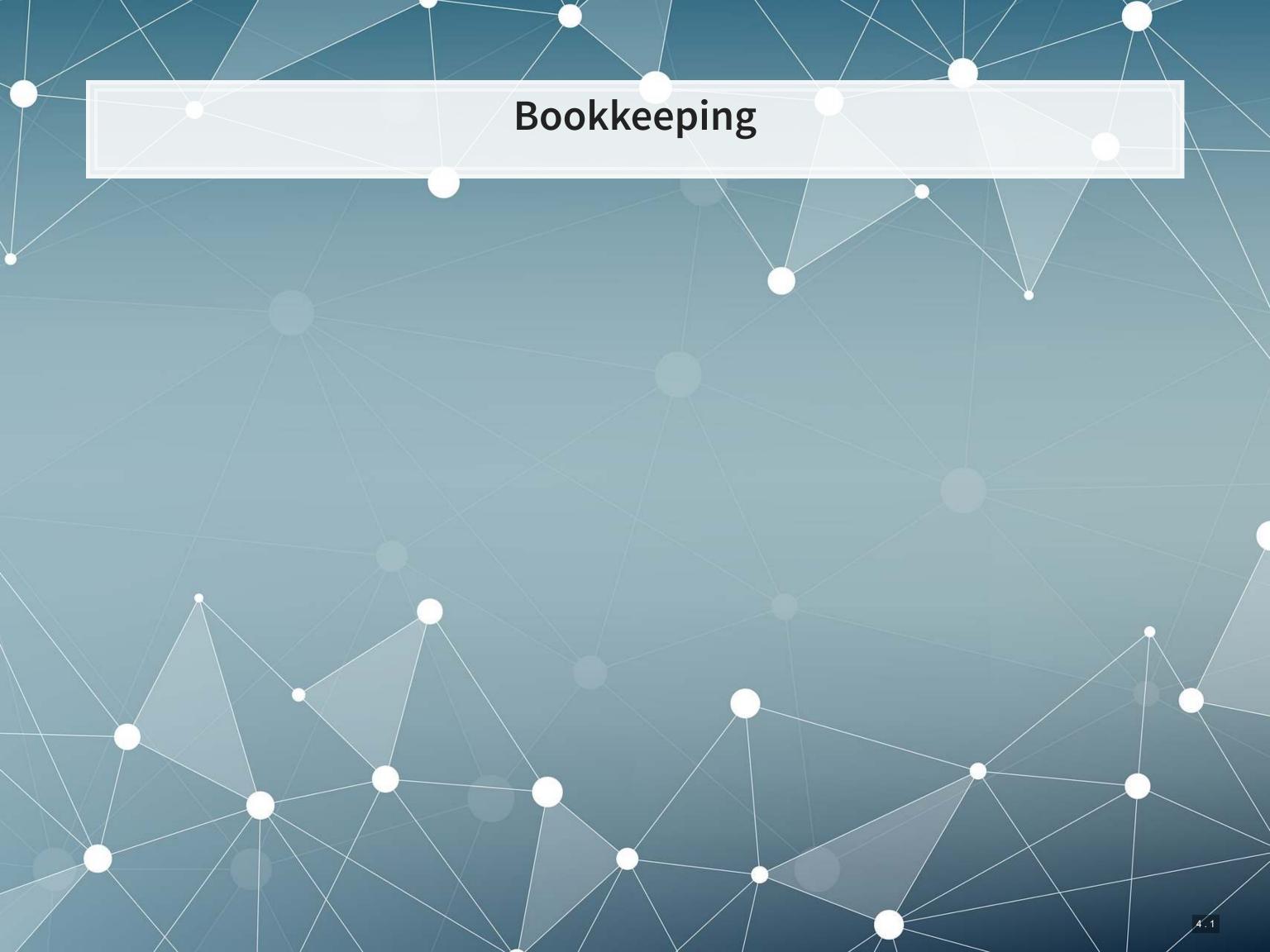
- 1. Where do debits go?
  - Left!
- 2. Where do credits go?
  - Right!
- 3. What do debits equal?
  - Credits!
- 4. What do credits equal?
  - Debits!

## Why does this all matter?

$$A=L+E \qquad A,L,E\in (-\infty,\infty) \ DR=CR \qquad DR,CR>0$$

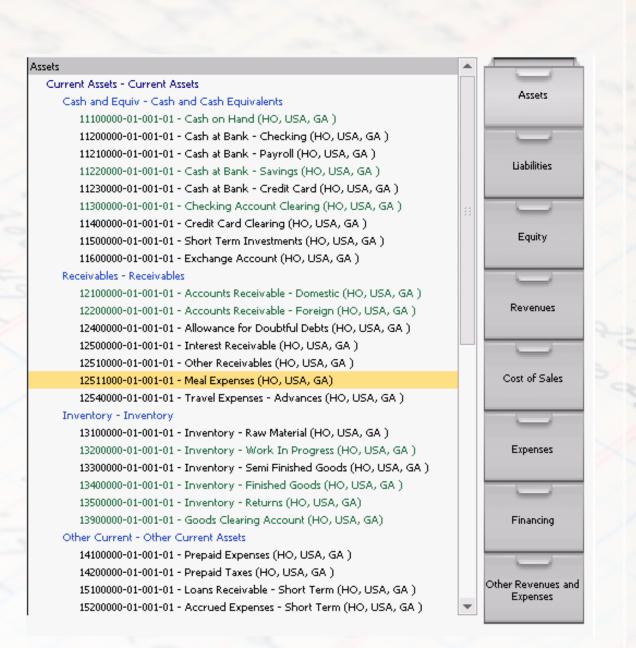
- Both of these equations inherently require that at least two changes are made with each transaction
  - For the top equation, the changes must either:
    - Affect both sides in the same direction, or
    - Cancel out within one side
  - For the bottom equation, the change must have a debit and a credit
- As these hold at the smallest element of the system, they aggregate up to hold for any amount of transactions
  - I.e., for a whole company or any subset thereof

Now we have a robust way to check for mistakes anywhere in our accounting system – just check each equation!



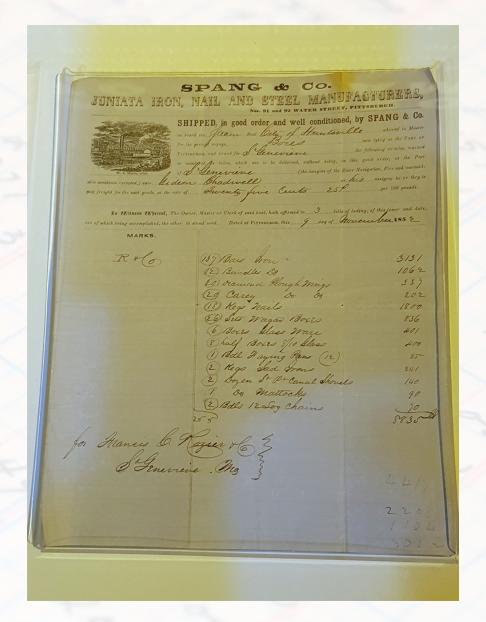
#### Accounts

- Assets: Cash, A/R, inventory, equipment, ...
- Liabilities: A/P, debt, expenses payable, ...
- Equities: Expenses, revenue, capital, ret. earnings, ...
- Documented granularly in the Chart of Accounts



#### Source documents

- The paper trail
- Establishes amounts
- Confirms a traction occurred or was contracted
- Allows for analyzing and verifying at the transaction level
  - Needed for auditing!



Bill of laiding, 1852 [Heinz Museum]

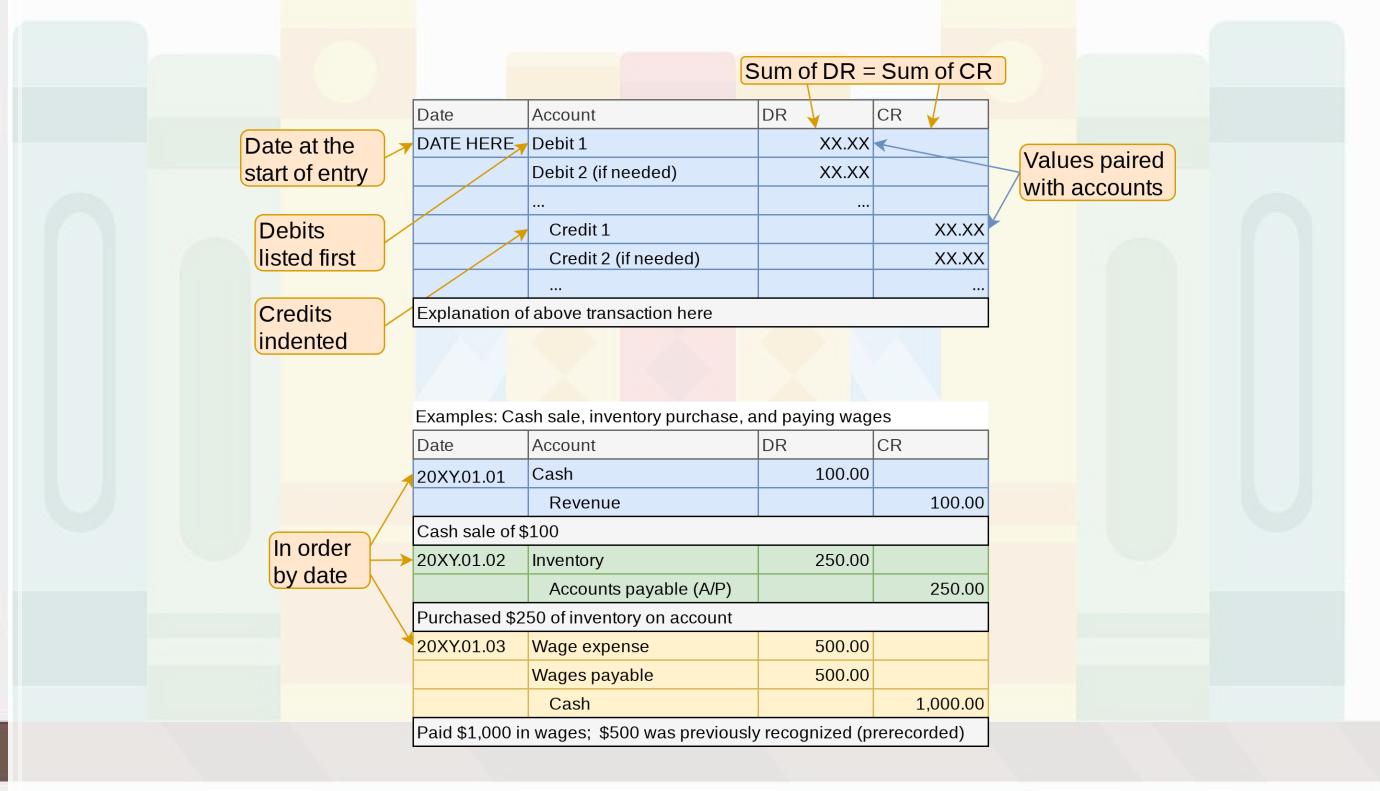
# General journal

- Where everything is recorded first
  - Everything
  - Every little transaction
- Specifies the accounts, values, and document for each transaction
  - We will skip references
  - We will be doing journal entries through session 9
- Always list debits first

General Journal			GJ1
unt Title and Description	Ref.	Debit	Credit
			10.0
		50,000	
otes Payable			50,000
wed \$50,000			
ment		30,000	
ash	1		30,000
ased equipment			
les		20.000	
	1		18,000
ash			2,000
ased delivery truck			
	ont Title and Description  otes Payable  wed \$50,000  oment  ash  ased equipment  les  otes Payable  ash	ontes Payable wed \$50,000 ment ash ased equipment les otes Payable ash	unt Title and Description Ref. Debit  50,000  otes Payable wed \$50,000  oment 30,000  ash hased equipment  les 20,000  otes Payable ash

DR = CR for each entry

# Constructing journal entries



## Constructing journal entries

- 1. Get the in class activity spreadsheet
  - Session\_2\_Activity.xlsx
- 2. We'll go through the first three transactions together
  - Journal entries
- 3. Journal (i.e., right out journal entries for) the next 11 transactions with your group in the blue tab of the spreadsheet
  - We'll do the rest of the activity throughout the class today



# General ledger

- An aggregation of all the accounts
- Shows all account balances
- Includes details of each account
- T-accounts sufficient for this course

Ca	ash	Accoun	ts payable	Revenue
\$5,000			\$2,000	\$100
\$100			\$250	
	\$1,000		7	
\$4,100	S.R.	3	\$2,250	\$100
	0			

	Inve	entory	Wages	payable	Wage expense	Share capital
	\$100	0		\$500	\$500	\$2,600
	250		\$500	20	-	0 9
				2 60		2018
-	\$350		9-	-	\$500	\$2,600

Starting balances listed in grey. Note that Revenues and Expenses always start with 0 balance.

DR = \$4,100 + \$350 + \$500 = \$4,950 CR = \$2,250 + \$100 + \$2,600 = \$4,950 A = \$4,100 + \$350 = \$4,450 L = \$2,250 + \$0 E = \$100 - \$500 + \$2600 = \$2,200 A = L + E \( \)

#### **Trial Balance**

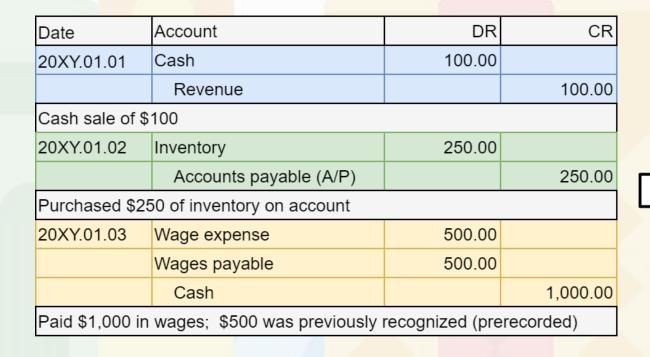
- Shows all account balances just like the general ledger
  - Make sure they add up!
- Use it to verify DR = CR
- Use it to verify the accounting equation
- Usually prepared at the end of a period
- Can prepare income statement and balance sheet from it

ShineBrite Car Wash, Inc. Trial Balance April 30, 20X4

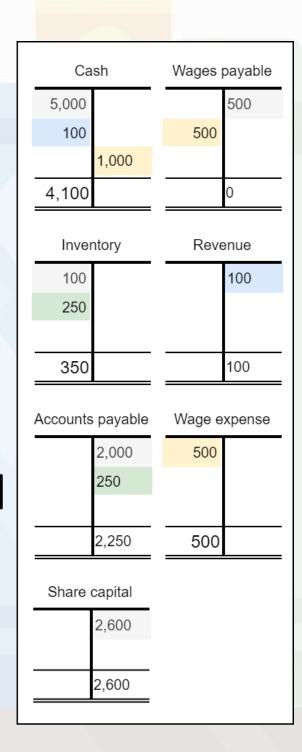
	Balance		
Account Title	Debit	Credit	
Cash	\$33,300		
Accounts receivable	2,000		
Supplies	3,700		
Land	20,000		
Accounts payable		\$ 1,800	
Share capital		50,000	
Dividends	2,100		
Service revenue		10,000	
Gain on sale of land		2,000	
Rent expense	1,100		
Salary expense	1,200		
Utilities expense	400		
Total	\$63,800	\$63,800	

DR = CR for totals

# Constructing the trial balance



Debit	Credit
4,100	
350	
	2,250
	0
	2,600
	100
500	
4,950	4,950
	4,100 350 500



#### Limits of the trial balance

- Can't catch:
  - Unrecorded transactions
    - Because there's no trace of them
  - Wrong amounts in transactions that balance in the journal
    - Everything still balances
  - Wrong accounts of the same type used in the journal
    - Everything still balances
    - A=L+E holds

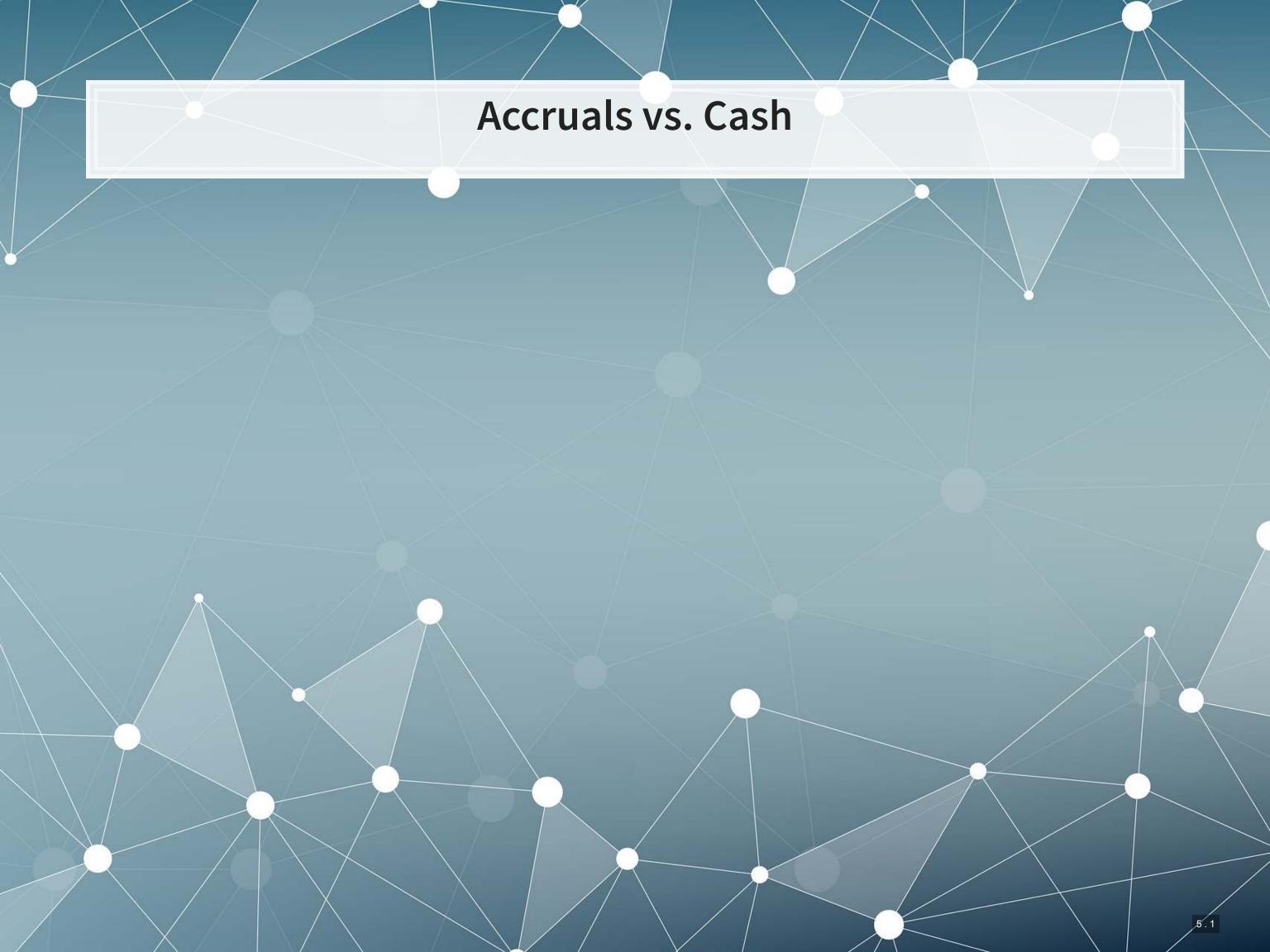
#### What you can catch

- Let the Out of balance (OOB) amount be:
  - -OOB = Assets Liabilities Equity
- If OOB / 2 is an integer
  - DR and CR in a transaction may be flipped
    - Ex.: Recorded a cash sale as a CR to cash and a CR to revenue
      - Should be a DR to cash and a CR to revenue
- If OOB / 9 is an integer, there may be a:
  - Slide error (multiplied by 10 or divided by 10):
    - Ex.: Recorded 5,400 instead of 54,000
  - Transposition error (flipped the first 2 digits)
    - Ex.: Recorded 45,000 instead of 54,000

#### T-accounts and the trial balance

- 1. Return to the in class activity
- 2. We'll do the first one as a class
- 3. Finish the rest of the activity with your group
  - Do the two green tabs





# Cash basis accounting

- Records cash only transactions
- Used by small companies
- $Profit = Cash\ in Cash\ out$

#### **PROBLEM**

- This ignores underlying economic activity
  - If we make a sale on credit, that doesn't add to profit
  - If we put an expense on credit, it doesn't lower profit



## Accrual accounting

- Records impact of transactions as they occur
- Required per IAS1, "Presentation of Financial Statements"
- Revenue recorded when it is "more likely than not"
- Expenses recorded as incurred
- Profit = Revenue Expenses

#### **PROBLEM**

- Profit may not be indicative of cashflows
  - This is a concern for lenders
    - If there's no cash, profit doesn't matter, as the company will go bankrupt

# Accrual transaction examples

#### **Cash Transactions**

#### **Noncash Transactions**

Cash sale	Sales on account (A/R)	
Borrowing money	Inventory purchases on account (A/P)	
Paying expenses such as wages and rent	Expenses incurred but not yet paid	
Receiving cash from interest earned	Depreciation expense	
Paying off loans	Usage of prepaid expenses (rent, utilities, etc.)	
Receiving cash from shares issued	Revenue from long-term projects with up-front cash collection	

## Periodicity

- Divides time into artificial segments to understand a firm's changes over time
  - Fiscal year, fiscal quarter
  - Breadtalk: Jan 1 Dec 31
  - Citigroup: Jan 1 Dec 31
  - Microsoft: Jul 1 Jun 30
  - Walt Disney
    - 2016: Oct 2 Oct 1
    - 2015: Oct 4 Oct 1
    - 2014: Sept 28 Oct 3



Don't focus on this too much for this class

## Revenue recognition principal

- Recognize revenue in the period it was earned
  - This may not be when cash is received
- Goods revenue recorded when it is more likely than not
- Service revenue recorded at the percentage complete
  - If 50% of the work is finished, record 50% of the revenue
  - If 20% of the work is finished, record 20% of the revenue

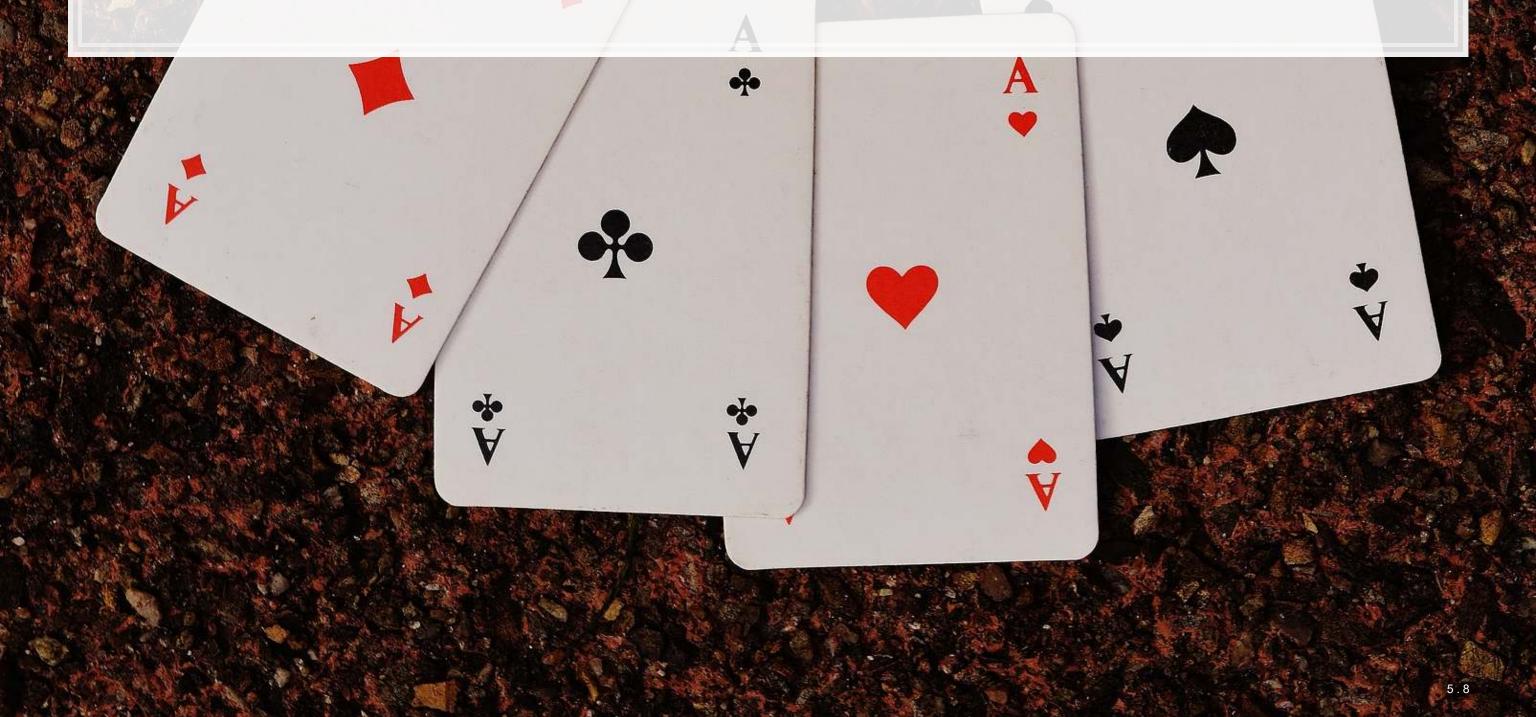
This will lead to a lot of tricky accounting, but mostly around period ends

### Recognizing revenue

- Record revenue when:
  - Revenue can be measured reliably
  - Economic benefits are more likely than not
- For goods, you also need to:
  - Transfer any significant risks to buyer
    - If we are shipping [FOB destination], wait until received
    - If they handle shipping [FOB shipping point], wait until picked up for delivery
  - Have no continuing managerial involvement (to an extent)
  - Be able to reliably measure all costs incurred from the transaction
- For services, you also need to be able to reliably measure:
  - The stage of completion
  - The costs incurred to date and costs to finish

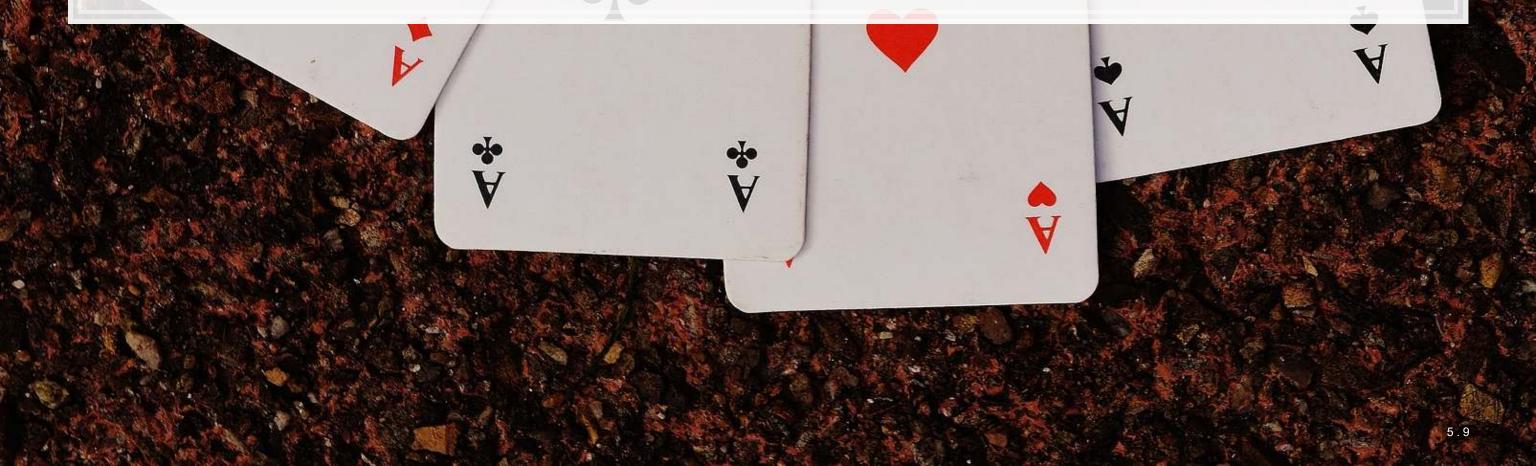


- Match expenses to the revenue within a period
  - 1. Identify what expenses were incurred
  - 2. Measure them
  - 3. Match to the revenues





- Recognize expenses only when an asset is used up
  - Asset purchase ≠ expense
  - Can record partial usage
- Formally, expenses are recognized when:
  - 1. Obligations are incurred, such as when services have been received
  - 2. Obligations are offset against recognized revenues (matching principle)



# **Expense matching**

- 3 ways to match
- Directly
  - The expense is easy to track to an account
    - Ex.: Inventory
- Indirectly (over a period)
  - The asset has a long life or is difficult to track
    - Ex.: Buildings
- With acquisition
  - Simultaneous usage and acquisition
    - Ex.: Utilities, rent, labor
  - Often prepaid expenses



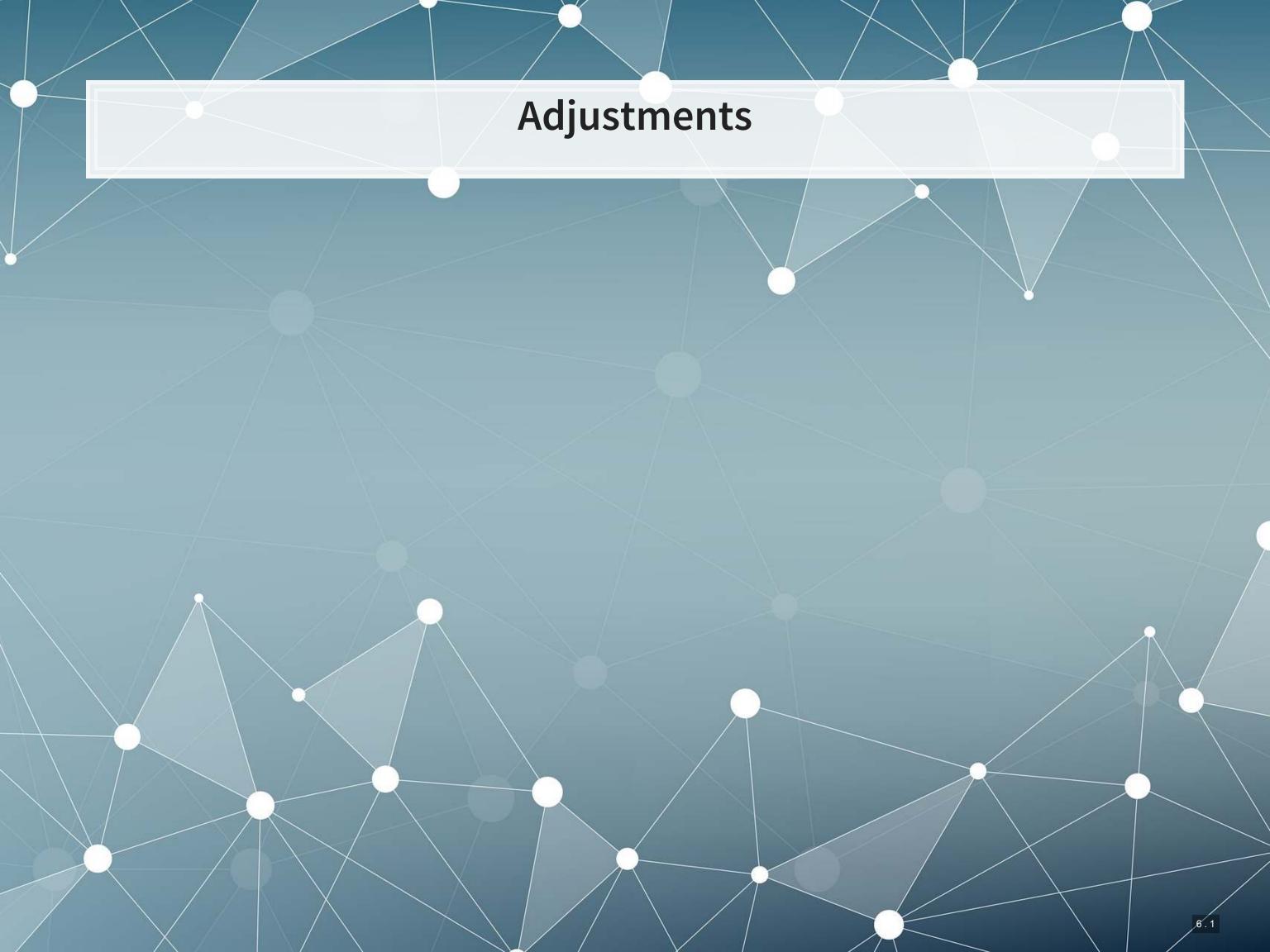
## When should we record...

- 1. A sale we are shipping at our expense
- 2. A sale we are shipping at the buyer's expense
- 3. Revenue for a week long consulting project paid for up front
- 4. Electricity usage
- 5. Building usage (our building)
- 6. Sale of inventory for revenue



### When should we record...

- 1. A sale we are shipping at our expense
  - Once the product reaches the buyer
- 2. A sale we are shipping at the buyer's expense
  - Once we ship the product
- 3. Revenue for a week long consulting project paid for up front
  - Once the project is finished
- 4. Electricity usage
  - When billed or at period end (matching principle)
- 5. Building usage (our building)
  - At period end (matching principle)
- 6. Sale of inventory for revenue
  - At the time the revenue is recognized



# Why do we need to adjust?

- The matching principle
  - Everything needs to be matched at period end
- Do before balance sheet and income statement
  - Adjustments will go to the trial balance once we record them
  - We call this an Adjusted trial balance
- Why not do this continuously?
  - Too costly some accounts continuously change
  - Investors only see period-end statements anyway

We'll only do this at period end

# What do we need to adjust?

- Adjustments needed to:
  - Asset values
    - Prepaid expenses
    - Inventory, supplies, etc.
    - Noncurrent assets
  - Liabilities
    - Payables we have yet to recognize
    - Unearned revenues
- Balanced by:
  - Revenues
  - Expenses

- All adjustments affect:
  - 1 B/S account
    - Assets
    - Liabilities
    - Equity excluding revenues/expenses
  - 1 I/S account
    - Revenue or expense
- NEVER affects cash

# Adjusting entry types

- Deferral
  - Adjust for prepaid expense (some used)
  - Adjust for unearned revenue (some may be earned)
- Depreciation
  - Some long term assets have been used up
- Accrual
  - Record an expense in advance

### **Deferral**

- Adjustment for cash paid or received in advance
  - Expense or revenue has yet to occur
  - We *defer* some of it to the next period

### Example: Deferred expense (previously recorded payment)

Date	Account	DR	CR	
20YY.MM.DD	Rent expense	1,000		
	Prepaid rent		1,000	
Prepaid rent of \$2,000/month, 1/2 month passed				

**Example: Deferred revenue** 

Date	Account	DR	CR	
20YY.MM.DD	Unearned revenue	3,000		
	Revenue		3,000	
Received compensation for 100 consulting hours at \$100/hour, 30 hours complete				

# Depreciation

- Adjustment for allocating the cost of *Property, Plant and Equipment* (PP&E) over its useful life
- Record to accumulated depreciation
- Asset's book value is asset account minus accumulated depreciation
- Depreciate to salvage value
  - What you expect to get when it is used up

### **Example: Depreciation of equipment**

Date	Account	DR	CR
20YY.MM.DD	Depreciation expense	5,000	
	Accumulated depreciation Equipment		5,000
Equipment depreciated by \$5,000 during the year			

# **Depreciation methods**

- Straight line
  - Same amount each period
  - If N periods, S salvage value, H historical cost:
    - (H-S)/N per period
- Units of activity
  - Expense based on units produced
  - Good if capacity is known and tracked
- Declining balance
  - More depreciation early on, less later







### Accrual

Accrued expense: debit expense, credit liability

### Example: Accruals: utilities expense and tax expense

Date	Account	DR	CR	
20YY.MM.DD	Y.MM.DD Utilities expense			
	Utilities payable		250	
1/2 month of unpaid utilities expense, typical month is \$500				
20YY.MM.DD Tax expense 20,000				
	Tax payable		20,000	
Expect to owe \$20,000 in income tax for the period				

Accrued revenue: debit asset, credit revenue

### Example: Accrued service revenue

Date	Account	DR	CR
20YY.MM.DD	Accounts Receivable	1,000	
	Revenue		1,000
Performed 10% of \$10,000 contract, with payment on completion			

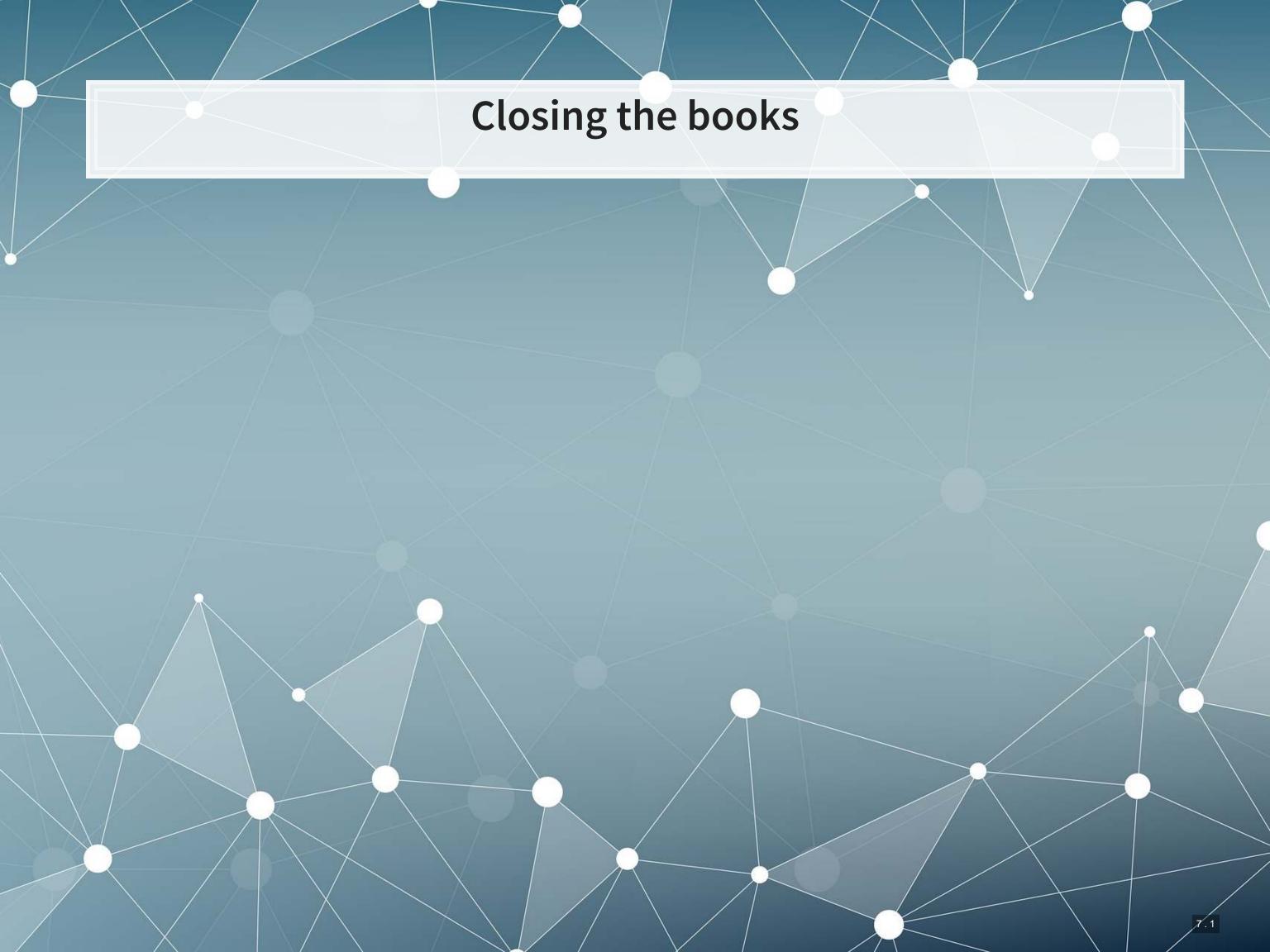
# Overall effects

Туре	Asset (↑=DR)	Liability (↑=CR)	Expense (↑=DR)	Revenue (↑=CR)
Deferal: prepaid expense	<b>↓</b>		<b>↑</b>	
Deferal: unearned revenue		<b>V</b>		<b>↑</b>
Depreciation	<b>↓</b>		<b>↑</b>	
Accrual: accrued expense		<b>↑</b>	<b>↑</b>	
Accrual: accrued revenue	<b>^</b>			<b>↑</b>



- 1. Return to the in class activity
- 2. 4 adjusting entries to add in
- 3. Do the three yellow tabs





# Closing the books

- Reset all temporary accounts to 0
  - All revenues
  - All expenses
  - Dividends
- Record a credit to temporary accounts with debit balances
  - Expenses, losses, dividends
- Record a debit to temporary accounts with credit balance
  - Revenues, gains
- Helps to track income through each period
  - Since all income-related accounts start each period with 0 balance

# Reset temporary accounts at period end

- We close the accounts into retained earnings directly
  - Or close into *income* summary, and then close that into retained earnings
- Debit Revenue, Credit Retained earnings
- Debit Retained earnings, Credit Expense
- Debit Retained earnings, Credit Dividends

### Example: Format for closing entry

Date	Account	DR	CR
20YY.MM.DD	Revenue	XX	
	Retained earnings (if decreased)	XX	<del>&lt;</del>
	Retained earnings (if increased)		XX
	Expense 1		XX
	Expense 2		XX
	Dividends		XX
Closing entry			

Retained earnings is a plug to make this journal entry balance. Include as a debit or a credit, but not both.



- 1. Return to the in class activity
- 2. 1 closing entry to add in
- 3. Do the two red tabs



# **End Matter**

### For next week

- 1. Recap the reading for this week
- 2. Read the pages for next week
  - Capital Structure (Chapter 10)
  - Accounting Statements (Chapter 3, Part B)
- 3. Homework to turn in next week
  - Available on eLearn
  - Submit on eLearn
- 4. Practice on eLearn
  - Practice on journal entries
  - Automatic feedback provided