02/10/2020.

- IIA - if a voter changes their ranking of z but leaves x and y the same relatively then the relative outcomes for x and y do not change.
- Condorcet - if a candidate wins all pairwise match up they are the single winner
- Pareto - if every voter prefers x to y then y does not beat x

* IIA = independence of irrelavent alternatives.

Do they or do they not?

	IIA	condorcet	pareto	up mono	add mono	anon
instant run-off	X	(X)	✓	X	✓	✓
Coombs	X	X	✓	X	X	✓
Borda count	(X)	X	✓	✓	✓	✓
plurality	X	X	✓	✓	✓	✓
sequential pair	(X)	✓	X	✓	✓	✓
dictatorship	✓	X	✓	✓	✓	X

Eric: Borda - Condorcet - Counter

A	A	B
B	B	C
C	C	D
D	D	A

Austin: Borda - Pareto.

In Borda every vote gives candidates points relative to their rankings the higher the ranking the more points a candidate receives. If a candidate x places higher than candidate y on every voters ballot they then consistently received more points and thus must have more points then candidate y and so y could not beat x

Caitlin: Plurality - Condorcet - Counter

V_1	V_2	V_3	V_4	V_5
A	B	B	C	D
B	A	A	A	A
C	C	C	D	B
D	D	D	B	C

A = Condorcet

B wins.

Plurality - IIA - Counter

V_1	V_2	V_3
A	B	C
B	C	A
C	A	B

tie (A = B)

→

V_1	V_2	V_3
A	B	A
B	C	B
C	A	C

A wins (A > B)

	IIA	condorcet	pareto	up mono	add mono	anon
copeland	(X)	✓	✓	✓	✓	✓

Emily: Pareto - Plurality

Suppose every voter prefers x to y. Then y can never be in first place since at a minimum x beats y. So y has 0 first place votes and is in last place. It may tie with x if x receives first place votes but it cannot place over (?) x.

Emily: Pareto - Dictatorship

Supposing every voter prefers x to y then the dictator also prefers x to y so x beats y.

Coombs - Condorcet - Counter

A	A	A	B	B
B	D	C	C	C
C	B	D	D	D
D	C	B	A	A

instant runoff - condorcet - counter

B	D	C	C	D
A	A	A	A	A
C	C	B	D	C
D	B	D	B	B

Kit Kat: Coombs - IIA - counter

A	C	A	C	A
B	B	C	A	C
C	A	B	B	B

→

A	C	A	C	A
B	B	C	B	C
C	A	B	A	B

3-B 2-C 1-A

C < A

2-A/B 1-C

A < C

B moves.

Eric: IIA - instant runoff - counter

(1)	X	Y	Y
	Y	X	X
	Z	Z	Z

Y Wins →

X	Y	Z
Y	X	Y
Z	Z	X

all tie

* A lot of this criteria are contradictory

Arrows theorem: the only system that is IIA and up mono, is dictatorship

* You cannot Condorcet and IIA at the same time (another theorem)