## 1. Majority vs Plurality, Preference Schedule

Definition: Plurality Winner

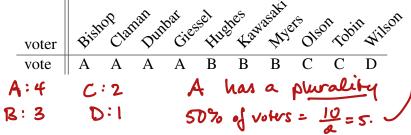
The candidate who receives the most (first-choice) votes.

Definition: Majority

Ten Alaskans are asked to vote on the "best" of four Alaskan villages.

Voters: Bishop, Claman, Dunbar, Giessel, Hughes, Kawasaki, Myers, Olson, Tobin, Wilson Villages: Adak, Bettles, Chevak, Diomede

(a) Given the vote below, who wins? Did they win a majority?



(b) Suppose, in a different world, they voters voted this way. Now what?

voter	Bi	O'C	$\sqrt[4]{\sqrt{1}}$	Cito	Hir.	o Aga	413	Ols	(d)	din Wilsof
vote	A	А	A	D	D	D	2			each
A -						S.d.La	2	Vest	2.0	Pach

(c) One option is to **collect more information.** See the new vote tally.

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voter	810	Cir	Qu	Cit	All	1 to	in	Or	200	AL
1st choice	A	A	A	В	В	В	C	C	C	D
2nd choice	C	$\mathbf{C}$	C	C	C	C	D	$\mathbf{D}$	$\mathbf{B}$	$\mathbf{C}$
3rd choice	В	В	В	D	D	D	$\mathbf{B}$	$\mathbf{B}$	A	$\mathbf{B}$
4th choice	D	D	D	A	A	A	A	A	D	A

Observe that the vote tally in part (c) can be usefully summarized as follows:

# votes	3	3	3	\		
1st choice	A	B	С	D		
2nd choice 3rd choice	C	C	D	C	4 preference	Sche dule
4th choice	B	D A	B	B	7 7-10-	

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## 2. Fairness Criteria

Statements that seem like they should be the

ex: ...

## 3. Condorcet Criterion

The winner of an election should also win every head-to-head matchup they participate in.

4. Show that Chevak (C) is the Condorcet Winner in the vote tally summarized in part 1d.

	# votes	3	3		2	1		1	
	1st choice	A	В	; [	C	C		D	
	2nd choice	C	C	!	D	В		C	
	3rd choice	В	D	)	В	A		В	
	4th choice	D	A		A	D	١	A	
		# votes		1.2	1.2	և գ	1	L 1	
IΔ	. 70   _	# votes 1st choic	20	3 A	3 B	2 C	C	1 D	
רץ	V -	2nd choi	- 1	C	C	D	В	C	
_		3rd choi	В	D	B	A	B		
3	vs / .	4th choi	th choice			A	D	A	
_				'	'	1	1	'	
ſΔ	UQ [	# votes		3	3	2	1	1	
1	V5 C	1st choi		A	В	C	C	D	
•	7	2nd cho		C B	D	D B	В	C B	
5	V S /		3rd choice 4th choice			A	A D	А	
		4th Cho		D	A	А	D	А	
		# votes		3	3	2	1	1	
Δ	vs D	1st cho	ice	A	В	C	С	D	
7	V	2nd che		C	C	D	В	C	
16	vc 6	3rd cho		B	D	В	A	В	
4	V2	4th cho	nce	D	A	A	D	A	

	# votes	3	3	2	1	1				
	1st choice	A	В	C	C	D				
	2nd choice	C	C	D	В	C				
7	3rd choice	В	D	В	A	В				
3 Vs /		D	A	A	D	A				
<b>-</b>	# votes	II	3	3	2	1	1			
>/		.					D			
.0					<u> </u>	_	C			
6		111	_	_			В			
5		- 11		_	_		A			
	4111 011010	=	ן	A	A	ן ע	А			
	# votes	1	3	3	2	1	1			
<b>D</b>	1st choic	е	Α	В	C	C	D			
	2nd choi	ce	C	C	D	В	C			
F			В	D	В	Α	В			
1		- 1	D	A	A	D	A			
won all its head-to-head atchups. So it is the Condorcet										
	_	# votes  # votes  Tst choice 2nd choice 3rd choice 4th choice  # votes  Tst choice 2nd choice 3rd choice 4th choice  # votes  Ist choice 4th choice  # votes  Ist choice 4th choice  # votes  Ist choice 2nd choic 3rd choic 4th choice  I ils ked-	1st choice 2nd choice 3rd choice 2nd choice 2nd choice 3rd choice 3rd choice 4th choice 2nd choice 3rd choice 4th choice 1 ils head-4	1st choice   A   B   2nd choice   C   C   3rd choice   B   D   A    # votes   3   1st choice   A   2nd choice   A   2nd choice   A   4th choice   D    # votes   3   1st choice   A   2nd choice	Techoice   A   B   C	1st choice	1st choice			

where!