pivot	.5	start										end	
		20	14	28	29	15	27	12	30	21	25	13	
pivot	S	start										end	pivot = A[start]
20		20	14	28	29	15	27	12	30	21	25	13	_
pivot			i										$egin{aligned} j &= lo \ i &= lo + 1 \end{aligned}$
20		20	14	28	29	15	27	12	30	21	25	13	
pivot		j		i									$A[i] \le pivot \implies j=j+1, swap(A, i, j)$ i=i+1
20		20	14	28	29	15	27	12	30	21	25	13	
pivot			j		i								$A[i] \ge pivot \implies i = i + 1$
20		20	14	28	29	15	27	12	30	21	25	13	
pivot			j			i					•		$A[i] \ge pivot \implies i = i + 1$
20		20	14	28	29	15	27	12	30	21	25	13	
pivot			j				i						$A[i] < pivot \implies j=j+1, swap(A, i, j)$ i = i+1
20		20	14	15	29	28	27	12	30	21	25	13	
	_			j									