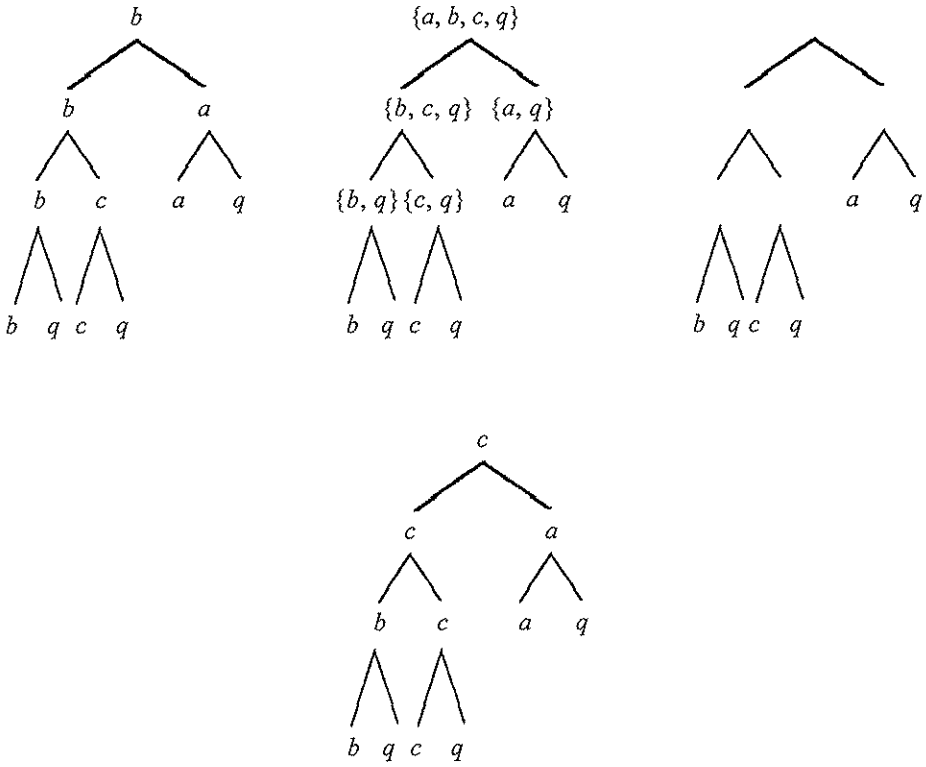

Fig. 8 The trouble with Farquharson agenda trees

Appendix 2: Controversy over agenda trees and sincere voting

My representation of agendas and my definition of $SN(T)$, the sincere voting outcome from agenda T, deviate from the original treatment of Farquharson (1969), agreeing instead with Ordeshook and Schwartz (1987). Miller (1995) opts for Farquharson's approach.

Under Anglo-American procedure, suppose we have a bill, an amendment, and a backup amendment, introduced only if the original amendment is rejected. For bill b and amended versions a and c, the agenda is the first of Fig. 8. But Farquharson and Miller would represent the same agenda by the second tree. *Alternatives* occupy only bottom nodes. *Sets* of alternatives occupy higher nodes; the set at each node comprises the alternatives at the bottom of the subtree beneath that node. Strategic voting is unaffected because it depends only on bottom nodes. But at each vote a sincere legislator can no longer compare two alternatives: they are no longer there. Instead he must compare two sets, and Farquharson and Miller say he will do so according to *lexicographic maximax*: pick the set whose best member is better, or if they are equally good then the one whose second-best is better, and so on.

To see what is wrong, note first that the Farquharson-Miller tree omits information. It does not tell us which two alternatives are compared at any but a final vote. It does show two sets, but they are redundant: the set at node N can always be found by looking to the bottom of the subtree headed by N. So their tree contains exactly the same information as the bare third tree. The cost shows up in the fourth tree. It obviously differs from the first in its

information content—in which alternatives are compared at the first vote. Yet Farquharson and Miller would represent both agendas by the second tree, or equivalently the third.

Suppose you are a sincere legislator who prefers c to a to b. On my view you would initially vote for a(against b) under the first agenda but against a (for c) under the fourth. As a result, a might be chosen under the first but not the fourth. But according to Farquharson and Miller, you would vote *against* a under both agendas, even the first, where a vote *for* a would sincerely voice your preference for a over b.

What, in general, is sincere voting? In the 2000 U.S. presidential election, a voter who preferred Nader to Gore to Bush and voted for Nader rather than Gore would plainly have been sincere, not strategic. The evident principle is this: A sincere voter votes for his most preferred of the alternatives available for voting. In the legislative case we also say that a sincere legislator is short-sighted, that he does not look beyond his two voting options to the bottom of the tree, that he compares their content, not their consequences. All these formulations fit sincere voting in my sense. But a sincere legislator in the Farquharson-Miller sense need not vote for his preferred of the two alternatives available for voting. Instead, like a strategic legislator, he compares them by looking ahead to all their reachable consequences at the bottom of the tree, only he then compares them on the basis of extreme optimism rather than informed calculation.

To bring out the difference, suppose we at first have an Anglo-American agenda that pits b against a, then the winner again q. A whip needs your vote for b against a (not against q), but you love a and loathe b. Knowing that you are "sincere" in the Farquharson-Miller sense, this whip shows you a new draft law, c, written to gratify your every wish, urge, ideal, dream, and interest. He promises to bring it to a vote if b defeats a at the first vote—a costlessly reliable promise, inasmuch as everyone but you abominates c. Thus expanded, the agenda is the first of Fig. 8. If Farquharson and Miller are right, you would vote for odious b against attractive a. How cheap they make your vote!

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