On Some Conjectures About the Maximum Order of Induced Bipartite Subgraphs
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We discuss some conjectures about the maximum order of induced bipartite subgraphs in simple, connected graphs. First we show that this maximum order is at least twice the radius plus the maximum order of a claw, minus three. This settles a conjecture of the program Graffiti.pc. Using similar techniques, we show that the average distance is less than half the maximum order of an induced linear forest, plus one-half. This partially settles a conjecture of Hansen et al. Finally, we use a result of Gould et al. to show that if the maximum order of an induced bipartite subgraph equals twice the radius, then the graph has a Hamiltonian path, another conjecture of Graffiti.pc.

Keywords: induced bipartite subgraph, induced forest, radius, claw, Hamiltonian path, Graffiti.pc