Reviewer 1

* Why linear plans in branching scenario?
* Is SE novel from dual-mode control?
* Probabilities and model counting?
* Comparison to conformant & conditional planners?
* Why not compile to existing approaches?
* How different from PKS?
* How different from Trevizan?
* Why not PFF?
* Gobelbecker ICAPS’10
* IPC problems don’t motivate the work
* PKS finds strong plans (guaranteed success), but incomplete domains may not admit guaranteed success and are more similar to probabilistic planning. The Bryce TR appendix discusses why probabilistic planning is most appropriate and translates incomplete planning to conformant probabilistic planning. The new methods are used because existing planners don’t specifically count domain interpretations.
* Trevizan et. al.’s work is highly related but focuses on unknown parameters (probabilities) not unknown structure (preconditions and effects). Combining the two is future work.
* Weber and Bryce tried both POND and PFF with poor results, see the ICAPS paper for discussion. Thus, compiling to existing approaches was not tried in this work.
* Given the compilations to probabilistic planning, adding questions makes the problem conditional, but the poor non-conditional results led us to consider the presented techniques.
* Entropy in dual-mode control is wrt. the belief state not a plan’s failure explanation.
* Pathways (an IPC problem) is a highly motivating domain because of a great deal of incomplete knowledge about biological processes, and posing questions is useful for designing experiments to learn/sense the biology. The domains are motivated by applications mostly, however, Bryce designed barter world to have high cardinality diagnoses, and it is the most challenging.

Reviewer 2

Soundness:

1. In copying Weber & Bryce’s example, we mistakenly omitted a del(b)={p}.
2. Alg1 Line 9 permits uniform treatment of failure in line 11 with the case that filtering an observation indicates failure in line 6. Existentially quantifying over fail in line 12 is (as commonly using in BDDs) is defined \phi |\_{fail} \vee \phi |\_{\neg fail}, where \phi |\_{fail} is obtained by replacing each occurance of fail in \phi with true (and likewise for \neg fail).
3. If \delta = (del(b,q) \wedge pre(c,q)), then \delta \models d(\pi) and \delta \models del(b,q)
4. A diagnosis is defined as by de Kleer et.al. ’92, a diagnosis is an implicant (a conjunction entailing the failure explanation d(\pi)). See the Bryce TR Sec. 4.1 for discussion: <http://digital.cs.usu.edu/~danbryce/papers/USU-CS-TR-11-001.pdf> We assume that \delta is a minimal diagnosis (per de Kleer), meaning it is a prime implicant.

Novelty:

- GDKA section onward is new: http://digital.cs.usu.edu/~danbryce/papers/WeberBryceICAPS11.pdf

* b dels p
* Exists fail

Reviewer 3

* novelty
* example