

From: Tuckey, David W david.tuckey17@imperial.ac.uk
Subject: FW: ASPOCP 2022 notification for paper 3
Date: 17 June 2022 at 11:42
To: Broda, Krysia B k.broda@imperial.ac.uk, Russo, Alessandra M a.russo@imperial.ac.uk

DT

Hi,

The paper has been accepted. I'll make the arrangements to go there and present it in person.
I have a lot of deadlines for Mondays so I will do the paper ready version next week.

I am considering not staying for ICLP and just do the 1 day workshop, having already done the week at ICLP before.

David

-----Original Message-----

From: aspocp2022@easychair.org <aspocp2022@easychair.org>
Sent: 16 June 2022 12:43
To: Tuckey, David W <david.tuckey17@imperial.ac.uk>
Subject: ASPOCP 2022 notification for paper 3

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Dear David,

We are happy to inform you that your paper n. 3 titled "A Semantics For Probabilistic Answer Set Programs With Incomplete Stochastic Knowledge" has been accepted for presentation at ASPOCP 2022. Congratulations!

Please note that FLOC registration is open and early registration will be possible until June 20, 2022:
<https://www.floc2022.org/registration>.

Note that ASPOCP will be an hybrid event but registration is needed also in case of remote participation. For virtual presentations, in line with FLOC, we recommend using a pre-recorded talk rather than relying on remote presentation.

The deadline for the camera ready version is June 24, 2022 ('Anywhere on Earth', namely 23:59 UTC-12').
We will send instructions for submitting the camera ready shortly along with instructions about presentations. The reviews for your paper are reported below.

Congratulations again!

Kind regards,
Markus and Jessica

SUBMISSION: 3
TITLE: A Semantics For Probabilistic Answer Set Programs With Incomplete Stochastic Knowledge

----- REVIEW 1 -----

SUBMISSION: 3
TITLE: A Semantics For Probabilistic Answer Set Programs With Incomplete Stochastic Knowledge
AUTHORS: David Tuckey, Krysia Broda and Alessandra Russo

----- Overall evaluation -----

SCORE: 2 (accept)

----- TEXT:

I think this paper contains a contribution that is sufficiently developed and interesting to be presented at the workshop.

I found the algorithm presented in Section 4 rather implicit. Maybe in future works this can be made clearer and more explicit.
Also other computational properties (like complexity) might be interesting. Currently, it is not clear from reading the paper whether the algorithm scales (but I would view this as future work).

----- REVIEW 2 -----

SUBMISSION: 3
TITLE: A Semantics For Probabilistic Answer Set Programs With Incomplete Stochastic Knowledge
AUTHORS: David Tuckey, Krysia Broda and Alessandra Russo

----- Overall evaluation -----

SCORE: 0 (borderline paper)

----- TEXT:

The work considers answer set programs and probabilistic semantics. Standard semantics assume that answer sets are equiprobable, which is a common choice in probability theory. The authors suggest ways such that the user can control the

probability distribution when stochastic knowledge is incomplete. They suggest a semantics called incomplete knowledge semantics (IKS) for probabilistic answer set programs with ideas from decision making under ignorance. The authors present an implementation and a small example.

Main contributions are: a semantics for probabilistic ASP with user defined ordered weighted averaging (OWA) operator, an implementation, its behavior on simple example.

The paper suggest an interesting idea and interesting direction. However, I have the following concerns on which the authors should clearly improve:

- 1) The setting is not well described and the motivational examples are in the latter part of the paper not easy to follow. It should also be clarified early on why the direction is interesting, it remains somewhat unclear from the introduction.
- 2) Formal definitions are partially lacking and should be made clear in a proper preliminary section including basic notions; there are quite a number of terms that are not formally defined. In the latter part, it's a mixture of examples and inline definitions, which are not necessarily formal. It would be better to have a proper outline with definitions, statements etc.
- 3) The implementation part, data generation part, ... are sloppy and not to the standard of an empirical consideration. This should be structured, proper questions stated, and then evaluated.

Question:

The OWA operator seemed a bit like a preference for probabilities. Wouldn't it also be possible to obtain a probability distribution according to the need by generating additional answer sets?

Overall:

The paper suggests an interesting research direction. But it is far from well written. It does not formally clarify why this formalism is needed nor is the application including the toy example to wind/rain setting comprehensible. While I find the quality of the paper quite lacking, I'd be interested to hear more about the topic as it might be an interesting direction. But the authors should make sure to be able present the key points in a talk. The current paper fails in that direction.

Minors:

- pls add page numbers or even line numbers to the paper for reviewing
- P5. It is somewhat unclear whether multiple probabilities are allowed
- P5. Literals remain undefined (default negation, strong negation...)?
- P6. I was somewhat confused about the total choice; atoms may occur multiple times, but then one is still interested in keeping track of each head. I probably missed something here; but it might be good to elaborate
- P6. Why do you add the atoms as facts? Not as integrity constraint?

----- REVIEW 3 -----

SUBMISSION: 3

TITLE: A Semantics For Probabilistic Answer Set Programs With Incomplete Stochastic Knowledge

AUTHORS: David Tuckey, Krysia Broda and Alessandra Russo

----- Overall evaluation -----

SCORE: 1 (weak accept)

----- TEXT:

The paper describes an easy way of associating probabilities to ASP models. The contribution of the paper is in particular for the case when the program does not have a unique stable model. It is conceivable that when the program has choice rules, the probabilities of the facts are no longer sufficient to derive the "correct" probabilities for the models and the problem of assigning probabilities might be under-specified. The main idea is to resolve this problem using the incomplete knowledge semantics. The probabilities of the facts are used for ordering the models and the user may choose a weight of each model, which will determine the final probabilities between the models.

The examples of weighting functions discussed include optimistic, pessimistic and normative attitude. The more interesting approach is to generate this weight as an Ordered weighted averaging operator by optimising the metrics of optimism and dispersion.

The proposed solution is studied using two intuitive examples, and the examples convince me that this approach could perform well in use cases beyond the examples.

The terminology in Sec. 4 could possibly be improved, since both α , the user-picked parameter, and the optimism metric Opt are called optimism. If I follow the discussion correctly, these are different things and maybe a new name could be picked for α ?

The work provides an easily approachable approach for a relevant problem, is hopefully interesting for the audience, and while the writing could be improved from the point of view of the technical precision, it is sufficient for following the main idea in the paper. I believe that the paper should be accepted.

