Review of Efficient representation of finitie sets

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Overview + Structure of the talk + Basics

The Abstract (Overview) is quite informing, and the first paragraph was quite fluently readable, I would have preferred for the rest to have been in a similiar matter, or at least easier readable, with a less high density of definitions and the like. The Definition 2.1 and the following thoughts are quite peculiar, additionally that we are going to have an automaton with infinitely many states and still no initial state, but I guess it only makes sense. What I was wondering about though was how this automaton would be used then. In retrospect I don't know if I would be calling it an automaton (since it does something else as far as I understood), but then again it is the closest to anything else I guess. I did not exactly understand how to interpret Proposition 2.1 yet, this might change in due time, still, I'm writing this down as confusion at least existed. I now understood it, and the confusion arose as to why the master automaton would be recognising languages in particular, since it has not been defined or even mentioned yet. Then again, it probably really makes sense to call it an automaton after all. During the talk I would probably mention how that automaton would be used when introducing it, or directly after. When introducing the make-procedure, T has not been mentioned yet, but I can infer that it probably is something like a relational structure, apparently with tree-like structure. The following Example and table were confusing at first, since the make(3, 2) is apparently to be interpreted as 'The state from which 'a' will get me to 3, and 'b' to 2'. I was quite confused at first since I expected it to be 6 at first, and now I'm convinced the 8 in there is a mistake as well, as it is probably supposed to be a 9. The table was confusing at first as well, since the meaningn of the zero did not get introduced and I would have expected there to be $q_\emptyset$ at first. Additionally the b-successor of 4 is apparently not 0 but 1.

Operation on fixed-length languages

About the $G(q_1, q_2)$-thing in the inter-algorithm: G did not at all get explained anywhere as of yet. I would have preferred you to describe what inter does more in detail, or explain the code in detail, otherwise don't show it, it's only confusing to read code using global variables all over and just about no comments. 0 in it's special meaning has yet to be introduced, and the description is useful, but should explain more than leaving questionmarks behind after reading it the first time.

Decision Diagrams

The explanation just before Definition 7.12 may be having a type-error, as the DD is supposed to be deterministic but $\delta(q, a\Sigma^k)$ retuns the set $\{q'\}$. Why a set? Is that correct? Why? After the Definition 7.12, I'm confused. I thought that there would be more of an explanation as to what the kernel actually is supposed to be, because I do not claim to have understood it after reading through it three times now. Additionally, afterwards there's withaout any explanation a master-decision-diagram, the kinter diagram which apparently has something to do with kernels ... maybe, again using stuff not at all explained, and two probably regarding to the decision-diagram updated graphs from the inter-algorithm, probably somehow relatet to kinter .... honestly, this kind of ending is weird.

short thoughts

Guess I failed as a DAU (Dümmster Anzunehmender User) regarding the reading of this article, I understood quite a bit of it. Then again, I would have preferred it to be more in detail with some edge-cases to gain a deeper understanding (but maybe this would have only been my personal preference and a better explanation would do the trick).

Conclusion

Everything was more or less understandable, but it could definitely be understandable easier and be more concise. The Overview was useful. I think the comparison to Decision Diagrams mentioned in 'Structure of the talk' did not exactly happen, but hopefully it will in the following talk, since I guess it would be interesting as well. There are quite a few formal definitions, I don't know how useful this is in the actual talk, but having too many formal definitions is not going to be easy. The notation should be explained more, but other than that it is quite understandable.