

Son Mar 29, 64

TMJ

Plan

01: 771.40: use R's "newly induced rule" that I just gave him. This should give me ^{new} ideas on what new thing TM must learn — also it should tell me things that TM₂ must know in order to be able to find R's desired induction in a reasonable length of time.

Also, whenever I give TM a new Q, I will see if he is able to answer it himself in a reasonable length of time.

SN TM mechanics: ~~the~~ Every fact that TM has

learned a bunch of new things, like new ^{ways to look for} these new things should be incorporated into TM as ^{very fast} "purpose hardware" — like read-only very high speed (i.e. optical) memory.

a/o optical search using certain Boolean kernels, etc.

This sort of thing may not be necessary in a very high speed machine but it may be essential if presently available tech. is to be used.

Or, have TM print out, at all times, ^{spaces of} R's new devices that it wants. These will then be continually manufactured and periodically incorporated into TM. Eventually, TM could do this info. process himself. [city]

34! 771.34: Just how is R. xtra of Ego. text into R. memory

SL contain all R. meanings I can find in R. text > an example of part of a near-opt. coding process?

SN There seems to be a slightly new concept here: we can have 2 (at least) retained by TM: ① R. original corpus ② Th. SL of R. corpus (or any other code of it). ^{the} ^{code}

is only a partial decr. of the corpus, but it still can do compos

is poor for direct predn., but it does do of R. info in R. corpus (which it is, etc.).

First of all, when I speak of "opt. coding"

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TMJ
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Plan

.01: 772.40: of prediction mechanism. I will somehow ~~physically~~ ~~construct~~ a code and a predn. mechanism to be R. same sort of thing and occasional refer. to 1 when I mean R. other. Usually I'll prefer to "op code." or "min. code."

Anyway: Say I have a s. in Eng., and I write out a "refer. equiv." in SL, giving various nuances of meaning that I have derived from my personal contact with R.W. Now if any of R. corpora ~~text~~ (text a/o QA's) do not contain stuff that is relevant to ~~either~~ (or "correlates with") one of those "nuances" then that "nuance" would not be part of a min. code of R. corpus (tho it certainly would do no harm in predn.). If R. "nuance" have > 1 reference in R. corpus then it could be part of a min. code of that corpus. At any rate, it is part of a min. code of a "corpus" that includes my personal observations, as well as TM's corpus.

Consider ~~then~~ certain "teaching machines" Eng. seqs. Prot. have already been written, as part of TM's Eng. seq.

A regular Eng → Eng dictionary and an encyclopedia would be a good part of TM's Eng. seq. The index of the encyc. could be very useful for TM's internal "R."

.25: 765.20: "What is beyond the wall of sleep?": "Tomorrow and tomorrow and tomorrow creep in this petty pace": Ambiguous statements with both meanings are desired:

.30 Consider a child who has been reading for ~ 6 months. Consider his vocabulary. It should be possl. to communicate to TM in this vocab. only, and write only text that such a child "understand."

Much, if not all of R. stuff on 765.10 - 20 and is figures of speech, etc. could be thrown out on this basis. Woops! I want a child who has been reading, 6 mo. I have to teach the child to understand Eng. TM's initial state of knowledge of a language basis would be on a recognizer device.

Tu Mar 31, 64

TM

Plan

01:773.40 : ① getting to R. "6 months of reading" child (13.30) as soon as possible
 • ② getting to R. pt. where TM could find most reps. ^{would ordinarily} I give him
 an unreasonably "acceptable" amt. of time (i.e. "acceptable" in the sense that TM could progress soft. rapidly w.o. making many "hints" or "solns." for him by me.)

I suspect, hvr., that I'll have to give a lot of QAs to see how TM is progressing - to find out if he needs any help.

The this business of emphasizing TM's "finding reps in R. text" (action is more or less "closed" to me) is a bit "magical" (I don't push but it gets done o.k.), but I think that its pretty much the direction to go to get TM to get the figs. of speech 765.10 ff and other "nuances" of meaning.

18. To reduce R. amt. of work I would have to do: what TM would see & see that it didn't understand, it would work on it a while. If it still didn't understand, it would read ahead a certain amt., and see if that helped. If it still wasn't clear, it would take note of R. diffy and continue reading. Periodically, I would ask TM for Qs, and he would tell me what things were puzzling him and I would explain these things to him.

25. Unclear now: Just how does TM go about finding redundancies in R. raw text? How does he manifest these / so I know he's found them? How much time does he spend on ~~the~~ search for reps. this kind? The idea here, is that a QA tells TM that it is very likely that R. A is very redundant, and so he expects to be able to find a rep. of ~~the~~ a suitably relevant kind in a "reasonable" time. In R. case of general redundancies in R. text, TM isn't ever sure when he has found enough reps. of this sort.

Actually, this is also a human prob.: One is never sure one understands something "as good as it can be understood" - "available" data - hvr., there are various clues for one that one has done certain things. Coding tags, SL, one in things, and note for other things. TM

~~TMX~~
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TMX

Plan



01: 774.90: wants "an explanation" to give it hyper cost.

It's not clear as to when one expects the "good explanation" - e.g. if an event can occur any of 10 different ways, then if it occurs in a way having $p=0.05$, this is not disturbing. But if it could only occur in 2 possibl. ways and it occurs in the $p=0.05$ way - one asks for "explain".

Apparently, ~~some~~ people have learned how to tell what a better explanation should be looked for. e.g. certain kinds of phenomena should be predictable with a certain accuracy - other kinds of phenomena, one should not expect ~~such~~ much accuracy.

Another factor determining how far a human will try for "reps." This is the knowl. of what reps. are likely to be "useful." e.g. TM will not look for reps. in the literary style of a gen. physics author if the TM is never asked Q's about such things. So a very simple function of the QA's is to tell TM what sorts of pred. I am interested in, so he can optimally allocate his search time in looking for reps.

I think I have a fair picture of how QA TM will operate. I should draw up as detailed a plan as possl., then indicate which pts. need more work.

→ In a thm proving TM, one of the meta heuristics is directed in direction - i.e. Each proof can be regarded as a QA - as well as being part of the "Text." One has, is to ~~code~~ code each P, so that it is of as low cost as possl. - also code it so it could have been found at min. cost (in time, mem). The prob. comes up - How much time at "reaching an understanding" one spend on one proof rather than another? This is useful reps. derived from the 2 proofs will be in the expected new probs. - also the expected "gain" pe related from the states of explann of the > p certain amt. of "understanding"

W Apr 64

TM 8

Phon



776




01: 775.40: obtained, one doesn't expect much more (unless one gets a new hint from R. "advice" channel). As a general rule, every proof should have at least 1 "expln."; since a human sees R. proof, and I think humans can't devise proofs that they don't understand (at least subconsciously!).

.10 The sense of having a hypost seq. of ops. to devise R. proof



$$\frac{48}{10} \times 2 \frac{1}{2} \approx 10$$

.15  O.K.: So \rightarrow the QA mode of PMTM \leftarrow

I: External Aspects of operation:

QATM is gn. a text to read. It is asked Q's every once in a while, these Q's being sometimes within R. text, sometime after each "completed section" of R. text.

.20 TM is gn. ~~an~~ an acceptable A for each Q. TM's goal is to get a by proxy ans. for each Q "before" R. A is gn.

.22 A special channel is available for suggestions and general 'help' info. This channel is part of R. ordinary "text", but is specially labeled so that TM can ~~learn~~ ^{learn} that ~~its~~ its info is to be used in special ways.

The "goal" referred to in .20 was that of TM₁.

The "goal" of TM₂ is to speed up and otherwise improve the operation of TM₁. This goal must be defined in terms of both the speed of TM₁ and R. goodness of a coding that TM₁ finds in a pu. time.

QATM has an extra output channel for asking for explain or answer asking Q's about things that he has spent a reasonable time on w.o. getting a v.g. ans. (see 774.78-25)