It is clear that the Semantic Web makes extensive use of current AI technology and that advances in that technology will lead to a better Semantic Web. But there is no need to wait until AI reaches a higher level of achievement; current AI technology is already sufficient to go a long way toward realizing the Semantic Web vision.

1.3 A Layered Approach

The development of the Semantic Web proceeds in steps, each step building a *layer* on top of another. The pragmatic justification for this approach is that it is easier to achieve consensus on small steps, whereas it is much harder to get everyone on board if too much is attempted. Usually there are several research groups moving in different directions; this competition of ideas is a major driving force for scientific progress. However, from an engineering perspective there is a need to standardize. So, if most researchers agree on certain issues and disagree on others, it makes sense to fix the points of agreement. This way, even if the more ambitious research efforts should fail, there will be at least partial positive outcomes.

Once a standard has been established, many more groups and companies will adopt it instead of waiting to see which of the alternative research lines will be successful in the end. The nature of the Semantic Web is such that companies and single users must build tools, add content, and use that content. We cannot wait until the full Semantic Web vision materializes — it may take another ten years for it to be realized to its full extent (as envisioned today, of course).

In building one layer of the Semantic Web on top of another, two principles should be followed:

- Downward compatibility. Agents fully aware of a layer should also be able to interpret and use information written at lower levels. For example, agents aware of the semantics of OWL can take full advantage of information written in RDF and RDF Schema.