

# Lowering the entry level: Lessons from the Web and the Semantic Web for the World-Wide-Mind

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## 1 The “World-Wide-Mind” (WWM)

The “World-Wide-Mind” (WWM) is a scheme in *sub-symbolic AI* (numeric and behaviour-based AI, neural networks, animats, artificial life, etc.) for constructing complex agent “minds” (action-taking control systems) through multiple authors. Authors put their (sub-symbolic) agent minds *online*, and other authors use these minds as components in larger minds. Communication is typically through schemes like competing *numeric weights*, rather than explicit symbolic reasoning.

This poster will *not* discuss in detail exactly what the WWM is *for* in sub-symbolic AI, for which see [Humphrys, 2001; Humphrys and O’Leary, 2002] and the portal site [w2mind.org](http://w2mind.org). Instead it will treat this as just another domain of programs communicating online, in which we ask how to apply Semantic Web ideas, given some unusual properties of this domain, namely:

1. We are trying to get existing sub-symbolic AI researchers to “publish” their algorithms online for remote re-use by others (as, essentially, *Web Services*).
2. The target audience *are* programmers, but not network programmers.
3. These algorithms are often *unique*, not commodities. Sub-symbolic AI is driven by unique individuals and research teams whose work is often not easily replicable by anyone else. Indeed, one of the problems with this field is how few people try out each other’s algorithms [Bryson, 2000; Bryson *et al.*, 2000; Guillot and Meyer, 2000]. Often, if the author does not put his algorithm online then *no one will*.
4. As a result, we are likely to be very “forgiving” of whatever the researchers *do* put online.

## 2 The entry level

### 2.1 The Semantic Web entry level

The standard approach with the Semantic Web has been to aim the technology at network programmers, Semantic Web experts, and other specialists, and assume that *tools* can hide this complexity from non-specialist users. As a result, the technology is forbidding for the non-specialist, even for programmers. The Semantic Web

made a deliberate decision to raise the entry level. We argue that this will not work in this case.

### 2.2 The Web entry level

The Web showed a different approach, where the technology *itself* could be approached by the non-specialist, at least at the entry level. We adopt this approach.

### 2.3 The WWM entry level

We construct an extremely low entry level, which rejects: (a) local installation, (b) network programming or complex APIs, and: (c) models of data that are *unforgiving*. We explain why these ideas will not work here. Instead, our entry level has: (a) remote use of server-side programs, (b) simple CGI programs reading standard input and writing standard output, and: (c) the “data” transferred in this world-wide “Society of Mind” being sub-symbolic data in an XML-like plaintext format, where well-formedness, as in the Web, is not necessary.

## 3 Conclusion

This simple entry level does not compromise usage of advanced Web Services and Semantic Web concepts at higher levels, as we explain. The discussion here may have implications for other areas of the Semantic Web where the target audience are programmers but not network programmers.

## References

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