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You have two extremely different ways to write specs / standards:

1. Use only a formal language and write specs in Lotos or similar. Hard, very hard (may be impossible) but allows to automatic processing (checking, pretty-printing, ...).

2. Use only natural language. Easy but you cannot check it or translate to code automatically.

An intermediate solution is to use mostly natural language with a few formal languages for specific tasks. This is what IETF does: English + (ABNF and / or MIB).

Other formal languages are being developed (draft-ietf-rohc-formal-notation for describing packet headers).
There are many of them in RFCs but no formal language.

1. Stuck to ASCII-ART, informal tables or lists of tuples,
2. No automatic checking possible (these checks catch a lot of ABNF mistakes, for instance)
3. No code generation possible
Cosmogol, a candidate

1. Based on the “list of tuples” approach,
2. Current state, message, next state, action: a transition,
3. Formal syntax,
4. A reference implementation which can:
   1. Check the SM (for instance its connectivity),
   2. Translate to Graphviz or Graph::Easy.
# RFC 2461, "Neighbor Discovery for IP Version 6"

START : "Packet to send" -> INCOMPLETE : "Send multicast NS";

INCOMPLETE : "Retransmit timeout, less than N" -> INCOMPLETE :
   "Retransmit NS";

INCOMPLETE : "Retransmit timeout, N or more" -> START :
   "Send ICMP error";

INCOMPLETE : "NA not solicited" -> STALE;

INCOMPLETE : "NA solicited" -> REACHABLE;
Roadmap of discussions

1. Do we want a formal SM language?
   2. If so, do we develop one?
      1. If not, which one to use? State Chart XML, UML, Z, SDL?
         2. If yes, is Cosmogol a good candidate? If yes,
            all the following issues
            1. Named sets of states / messages?
            2. Substates
            3. Syntax details?
            4. Unicode identifiers?
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   2. If yes, is Cosmogol a good candidate? If yes, all the following issues should be for the WG to work on
      1. Named sets of states / messages?
      2. Substates
      3. Syntax details?
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Creating a WG?

Depends on the output of the previous discussions. Volunteers to work? See proposed charter sent on the mailing list.