CONTENT REPRESENTED WITH RELATIVELY SIMPLE AND WIDELY KNOWN DATA FORMATS CAN BE SAVED MORE OR LESS "AS IS".

described completely and unambiguously.

A producer typically tries to encode information so that each consumer can read or otherwise use the content. In an ideal scenario as depicted in Figure 1, perfection would be characterized by the consumer understanding exactly what the producer intended to communicate. However, in addition to the consequences of human imperfections of authors and editors, the 0→1 and 9→10 steps suffer from unavoidable language limitations. (Jargon, expectations, world views, and ontologies are at best imperfectly shared. For example, I cannot tell you what I mean. I cannot know how you interpret what I say.)

Such difficulties originate in the theoretical limits of what machines can do. How we might mitigate them will be discussed in future articles. Philosophical arguments that TDO methodology accomplishes as much as any mechanical method can accomplish toward preserving digital information, and that it attempts no more are presented in [4]. A second work in progress examines what information producers can do to minimize eventual consumers' misinterpretations, given that communication invariably confounds intentional with accidental information.

Discussion

Premature digital preservation deployment would risk that flaws might not be discovered before large expenditures are made to create archival holdings of uncertain quality. Errors might distort meanings (for texts) or behaviors (for programs). The questions reach into epistemology—the philosophical theory of what can be objectively known and reliably communicated, in contrast to what must forever remain subjective questions of belief or taste. We are therefore reluctant to implement pilot installations until we have considered the applicable philosophy thoroughly and until experts have had the opportunity to criticize TDO design.

What's Missing from the U.S. Digital Preservation Plan? Engineers want questions that can be answered objectively. They expect plans to be clear enough so that every participant and every qualified observer can understand what work is committed and can judge whether progress is being achieved.

We expect a plan to articulate concisely each objective, the resources needed to meet it, commitments to specific actions, a schedule for each delivery, and a prescription for measuring outcomes and quality. If the plan is for a large project, we expect it to be expressed in sections that separate teams can address relatively independently. If the resources currently available are inadequate, we expect the plan to identify each shortfall. Finally, if a team has already worked on the topic, we expect its plan to list its prior achievements.

NDIIPP funding is commensurate with that for all foreign preservation work combined. Unfortunately, the technical portions of [6] contain little more than vague generalities and decade-old ideas. It identifies few technical specifics, no target dates, and few objective success measures. Engineers will find little to work with. Later publications do not repair its weaknesses. This is troubling for an initiative launched six years ago.

Competitive Evaluation. Firm assertions of TDO packaging advantages over alternatives would be premature before we have deployed a complete pilot. Ideally, we would compare our design to alternatives. However, nobody has designed one. Notwithstanding such uncertainties, we believe that, in addition to satisfying our starting objectives, TDO support infrastructure will exhibit the following desirable characteristics:

- Consumers will be able to evaluate TDO content authenticity without help from administrators.
- Metadata-to-object dissociation will occur at most