

48th IAA SYMPOSIUM ON THE SEARCH FOR EXTRATERRESTRIAL INTELLIGENCE (SETI) –
 The Next Steps (A4)
 Interactive Presentations - 48th IAA SYMPOSIUM ON THE SEARCH FOR EXTRATERRESTRIAL
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FROM SIGNAL TO MEANING:
 A RESEARCH MAP FOR MESSAGE INTERPRETATION

Abstract

If SETI / technosignature searches ever detect a signal that apparently holds informational content, we will wish to learn what it means or at least what it implies. Considerable research has been done to unpack that challenge, looking at methods to identify, categorise and analyse types of communication phenomena. However, as underscored in the recent NASA Technosignatures Workshop (Gelino, Wright, et al 2018), the challenge of discerning that a signal contains information, and then understanding the content, still requires attention and research, to scope and make provision for a vast array of possibilities. This present contribution forms an essential part of an emerging post-detection research roadmap (Denning et al 2019, this session).

To develop methods for identifying ET sourced signal information, a wide range of terrestrial and other known quantifiable phenomena have been analysed, to understand how automated analytics can quantify and categorise their structures for interpretation (Elliott 2011a, 2011b, 2011c, 2015; Elliott Baxter 2012a, 2012b). These methods, resources and metrics now comprise an analytical 'backbone', for the discovery and learning of internal 'syntactic' structures, for underpinning capabilities towards semantic interpretation. The role of metadata may be crucial (Herzing et al 2018). This task is both complex and vast, so we need to have ongoing conversations about reasonable expectations: how certain we will be, what the likely limits are, and how confidently we could differentiate between different plausible interpretations. This paper therefore brings together prior developed stages and identifies the core remaining research challenges we face.

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