Australian Government
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Towards a Semiotic Information Position Framework for Network Centric Warfare

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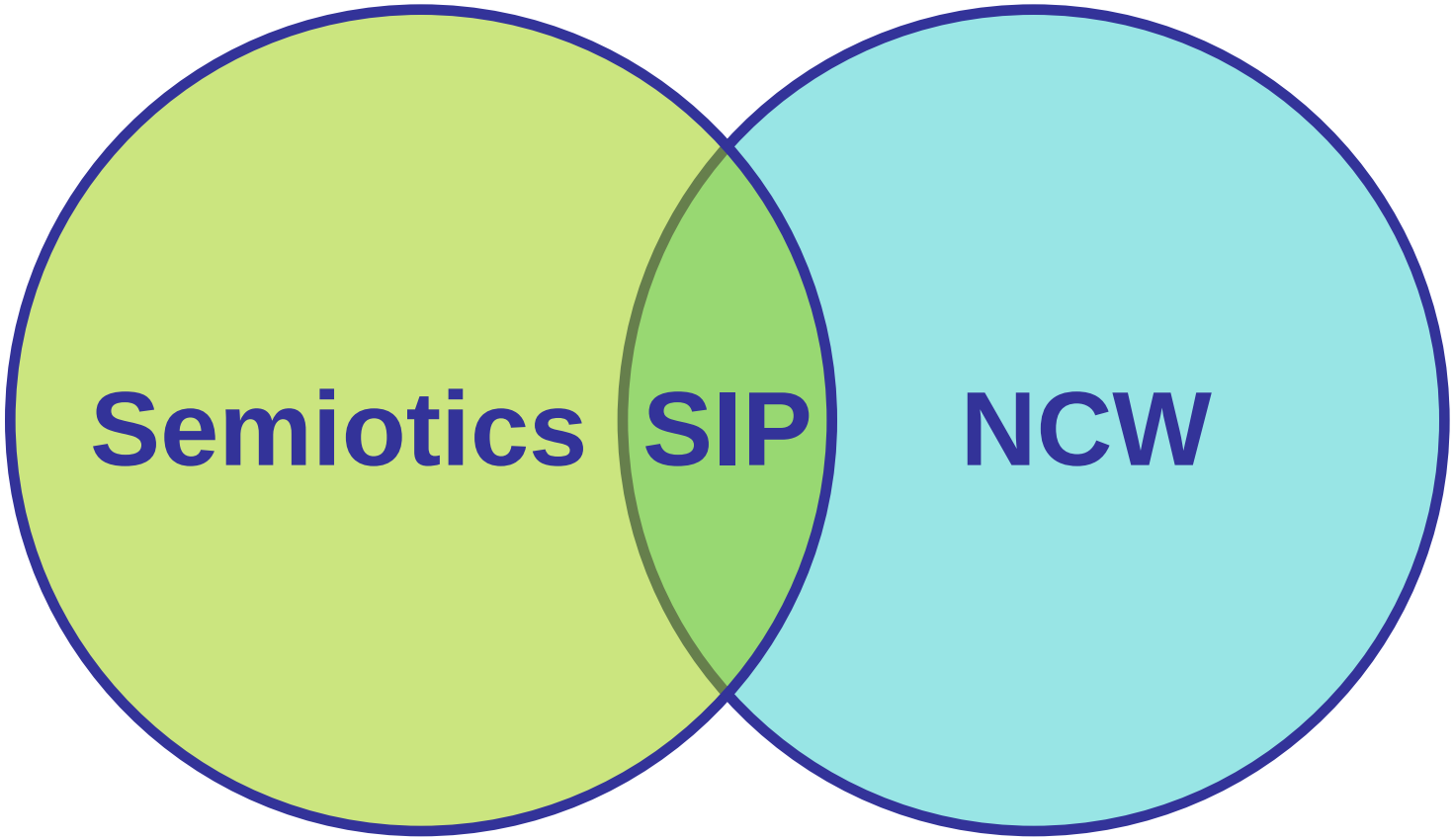

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Semiotics

- A field of study that deals with the relationships between representations, intended meanings, and interpretations of signs and symbols.
- Is concerned with anything that can be taken as a sign [1].

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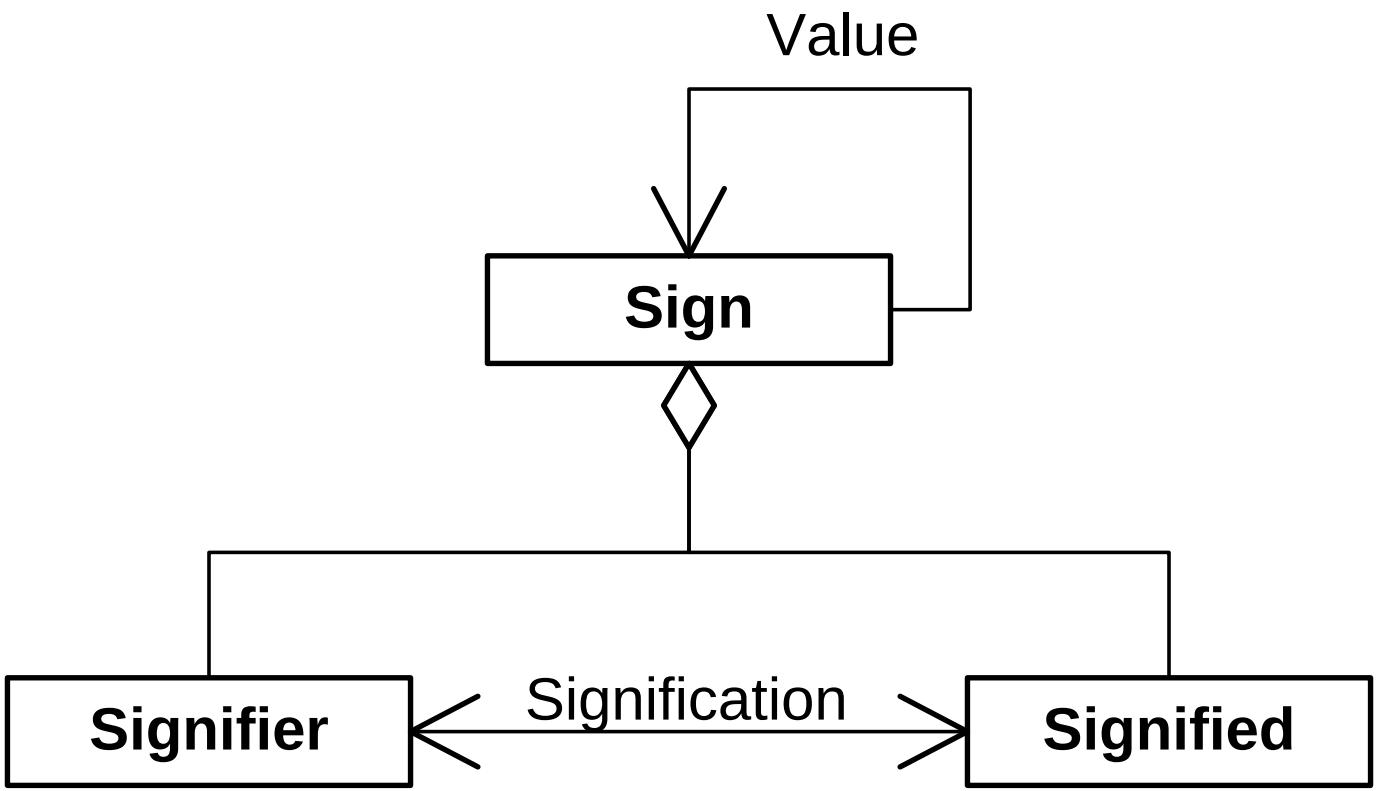
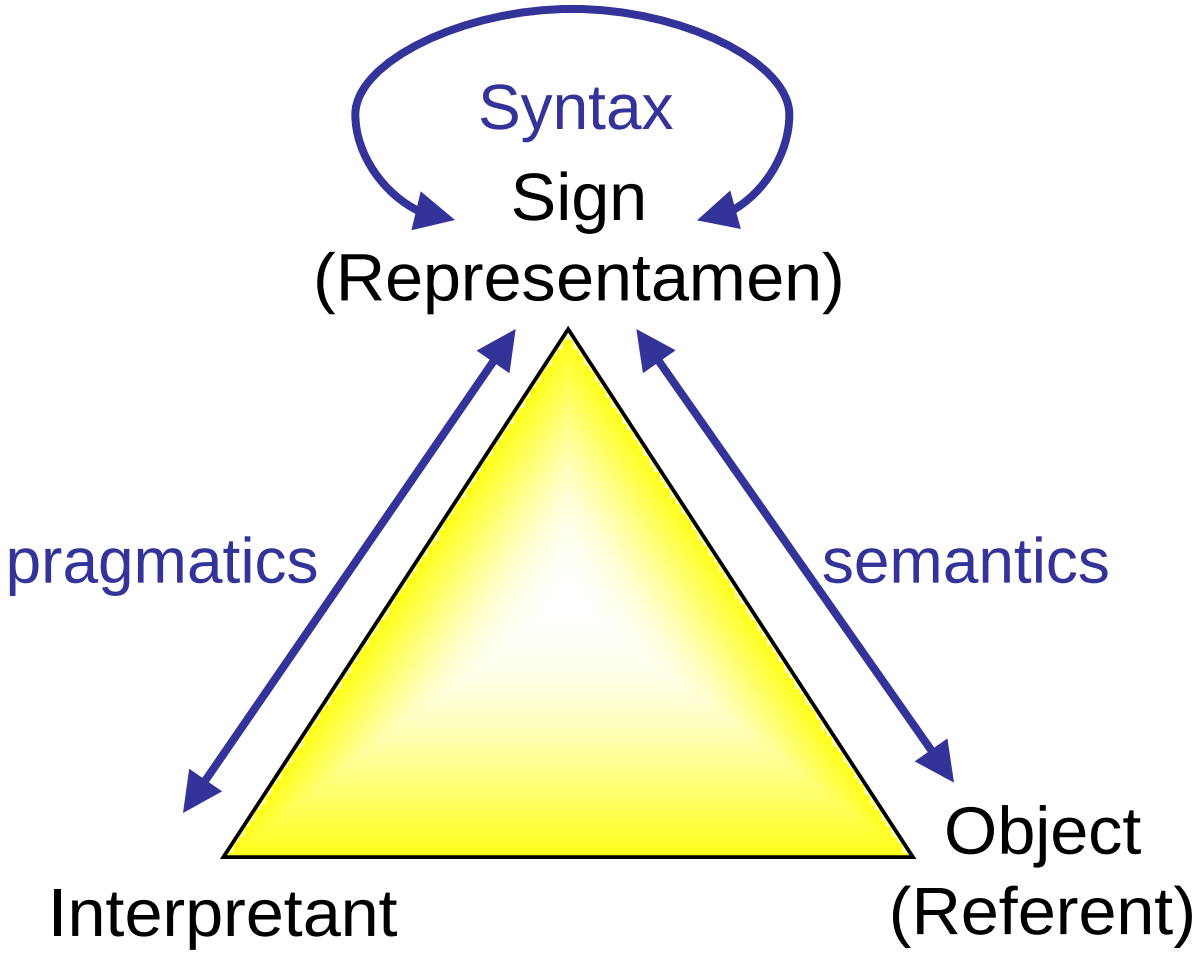
Saussure's Sign



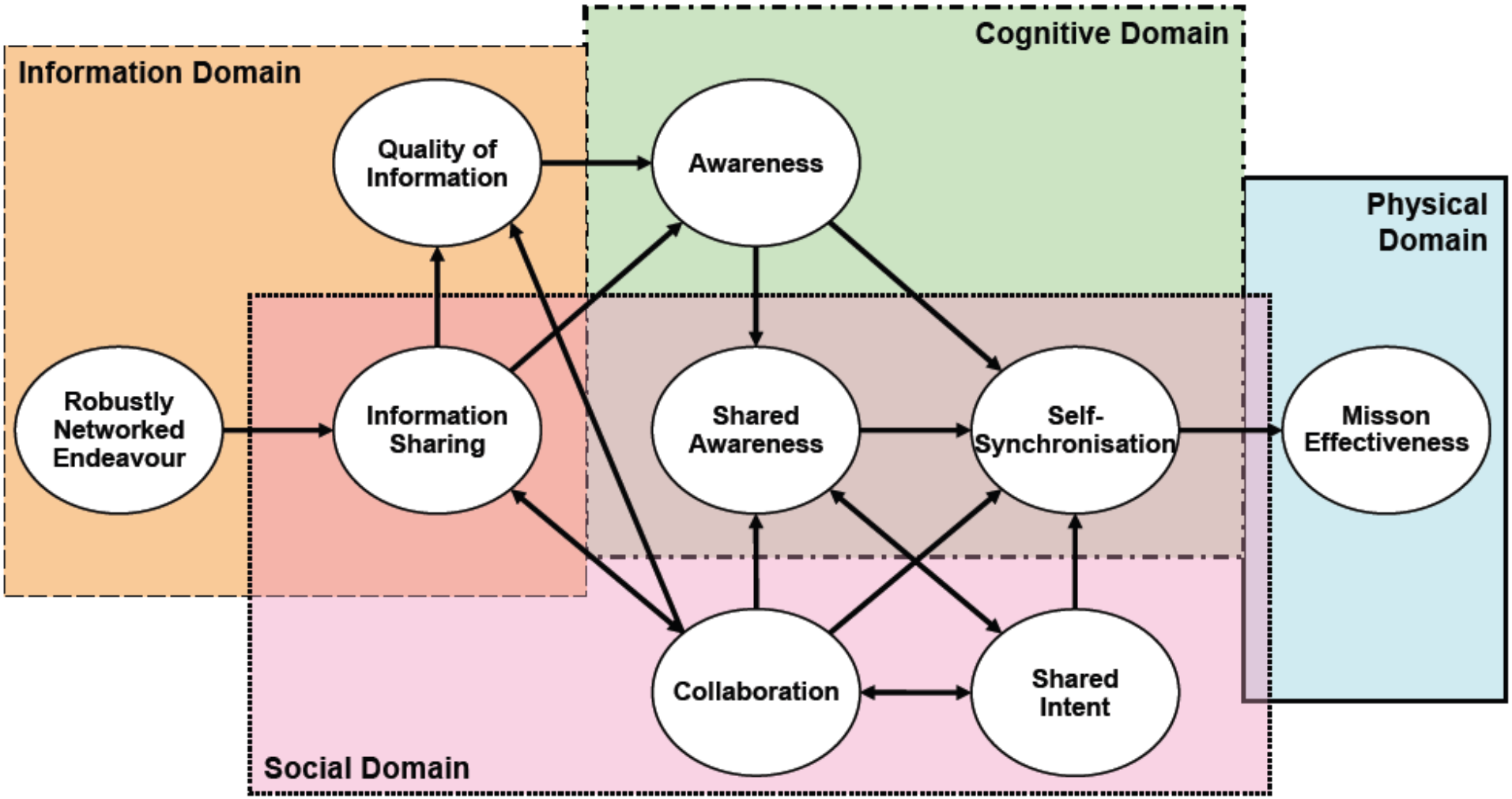
developed from [2]

Peirce's Semiosis



developed from [3, 4]

Network Centric Warfare



adopted from [5, p. 27]

NCW Primitives

Sensing

Data

Information

Knowledge

Awareness

Understanding

Sharing

Collaboration

Decisions

Actions

Synchronisation

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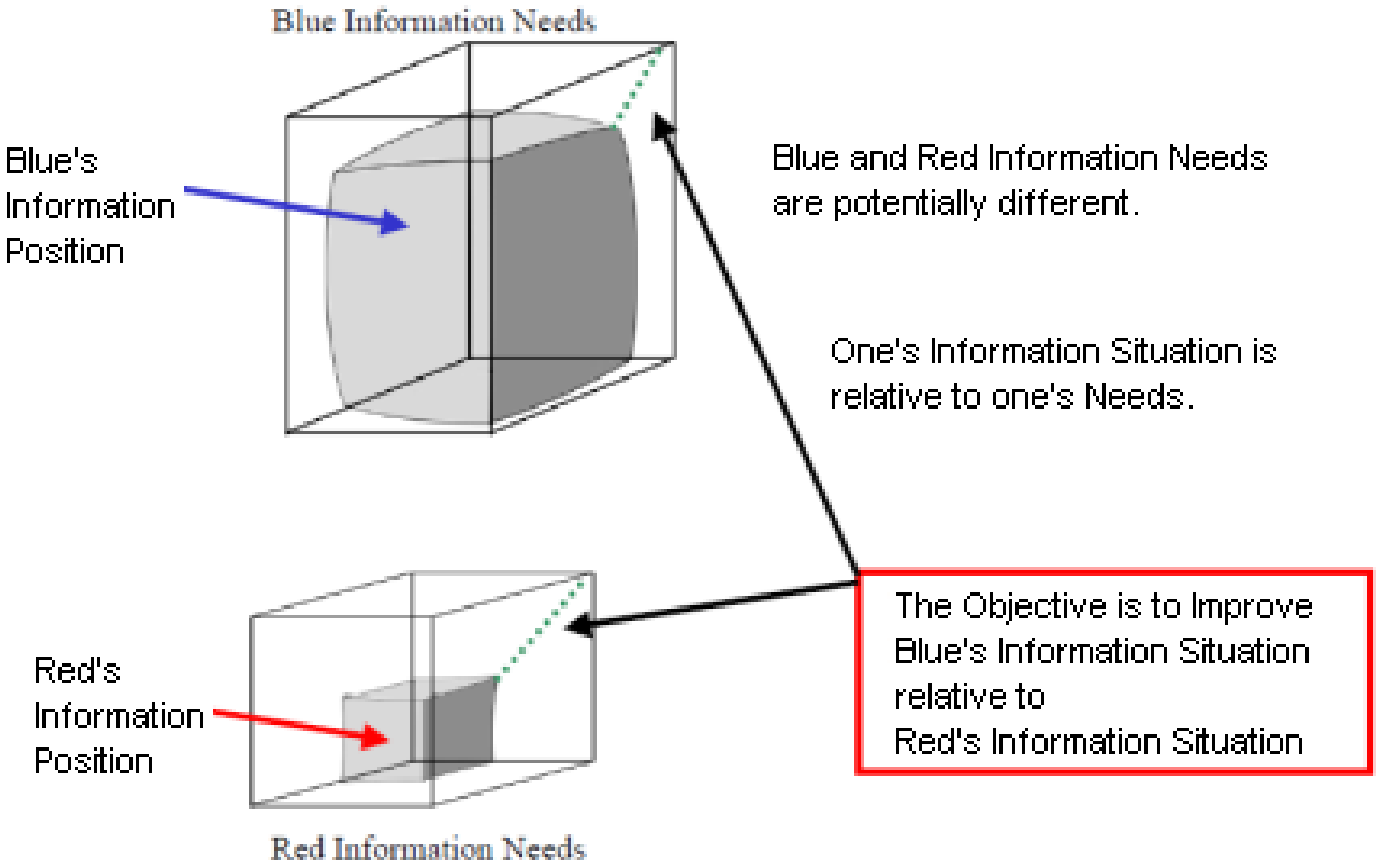
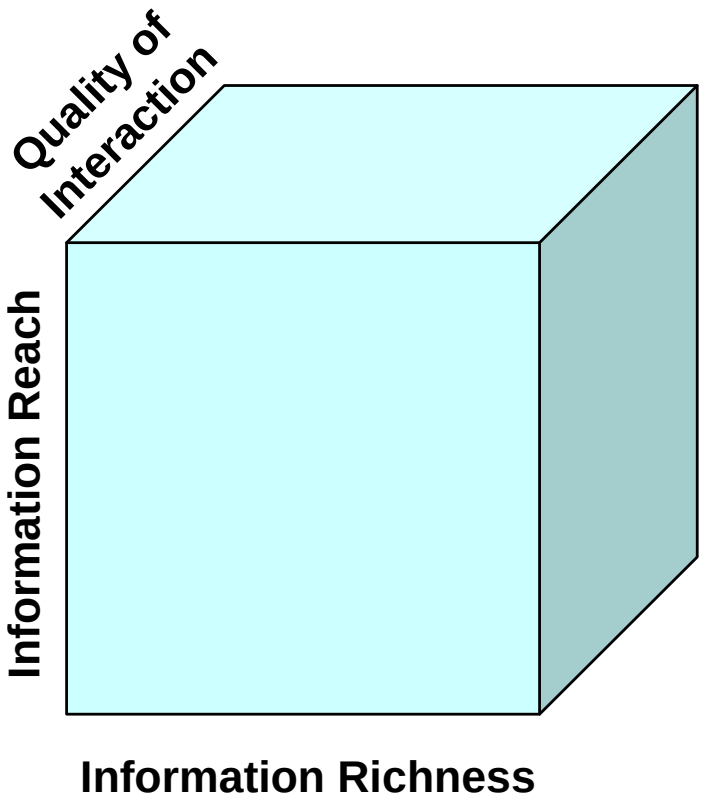
Relative Information Advantage



adopted from [6, p. 108]

Dimensions of Information Position



developed from [6, p. 104]

Information Richness

- completeness
- correctness
- currency
- accuracy
- consistency
- relevance
- timeliness
- assurance

Information Reach

- number and variety of people, work stations, or organisations that can share information

Quality of Interaction

- data/text/voice exchanges
- static/dynamic images

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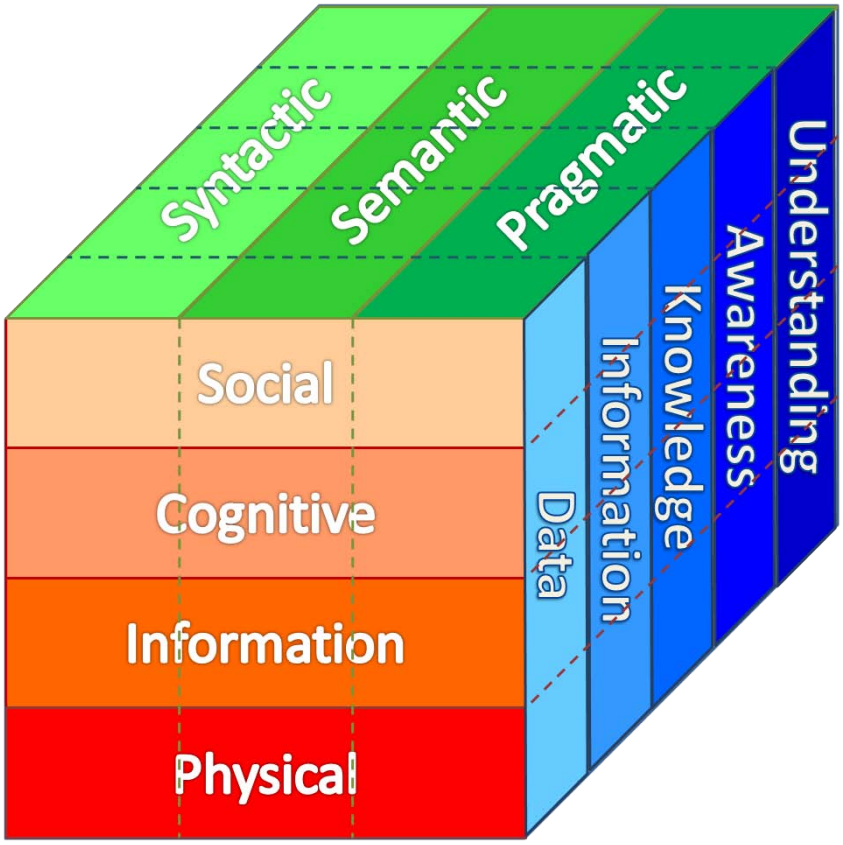
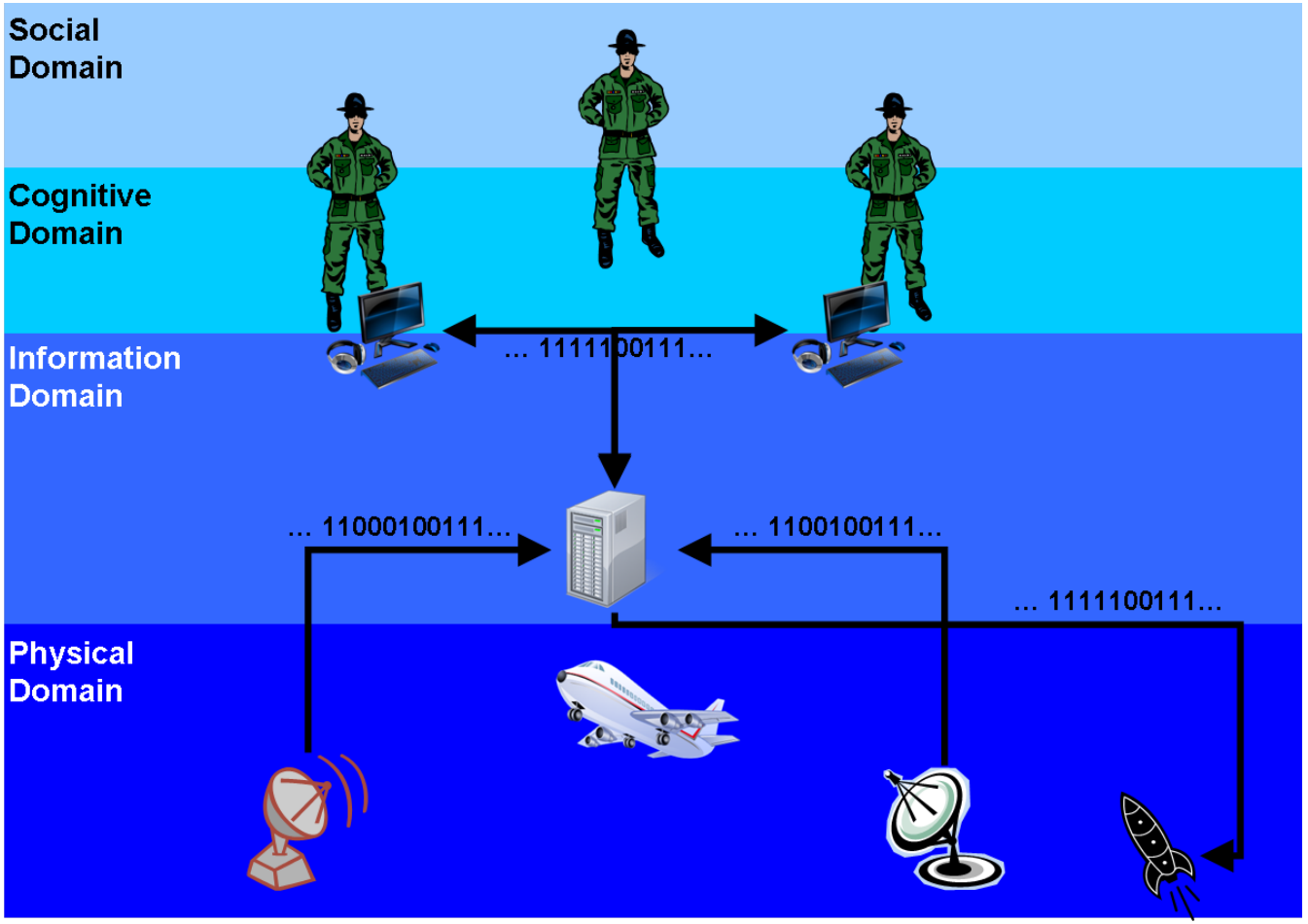
Semiotic Information Position Framework



Thought Experiment



Conclusion

- Indirect sensing involves multiple interpretations/ translation by several entities across all of the NCW domains.
- Errors in interpretations in any of the domains from any of the perspectives may lead to misinterpretations of reality, leading to ambiguity in situational awareness.
- The SIP framework explains cross-domain interpretations and it can be used to critically analyse and/or inform situational awareness in terms of the C2 system components and their capabilities and interactions.

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Future Research

- Identify key syntactic, semantic, and pragmatic rules for specific NCW scenarios.
- Investigate impact on mission effectiveness.
- Relate to the broader cognitive science literature.

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Thank You

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References

1. Eco, U., *A Theory of Semiotics*. 1979: Indiana University Press.
2. Saussure, F.D., *Course in General Linguistics*. 1983, London: Duckworth.
3. Peirce, C.S., *The Essential Peirce, Volume 2: Selected Philosophical Writings, 1893-1913*. 1998: Indiana University Press.
4. Morris, C.W., *Foundations of the Theory of Signs*. 1938, Chicago: Chicago University Press.
5. Alberts, D.S., R.K. Huber, and J. Moffat, *NATO NEC C2 Maturity Model*. 2010: CCRP.
6. Alberts, D.S., J.J. Garstka, R.E. Hayes, and D.A. Signori, *Understanding Information Age Warfare*. 2001: CCRP.