

Relationship of Micropublications to the SWAN Model

Additional Material 3 for:

Micropublications: a Semantic Model for Claims, Evidence, Arguments and Annotations in Biomedical Communications

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A.3 Relationship of Micropublications to the SWAN Model

It may be helpful to outline some of the principal differences and correspondences between the micropublications ontology (mp), and SWAN [1].

- Hypotheses and Micropublications
 - A `swan:Hypothesis` corresponds most closely to an `mp: Micropublication` together with the Claim it argues.
- Claims and Statements
 - A `swan:Claim` roughly corresponds to an `mp:Statement`.
- Evidence
 - SWAN models evidence for Claims in the form of literature citations, while Micropublications also model Data and Methods.
 - Micropublications support both literature citations-as-support (document level) as well as direct Claim / Statement citations (statement level).
- Statement Consistency
 - In SWAN, a knowledgebase curator asserts inconsistency, between Claims globally, at a single point.
 - In Micropublications, inconsistency is modeled as *challenge*, and may be asserted by anyone. There may or may not be a global curator, as needed.
- Statement Similarity
 - SWAN implemented the notion of statement similarity using “canonical statements”.

- Micropublications models statement similarity using similarity groups and uses the holotype of such a group as a surrogate claim to represent the common meaning.
- Micropublications similarity groups may be asserted as Micropublications themselves.
- Multi-polarity
 - SWAN does not model multipolar argumentation. The concept of inconsistency is vague, relatively subjective, and global.
 - Micropublications models multipolar argumentation, using challenge relationships. It is therefore compatible with bipolar argumentation frameworks. Furthermore, its *challenge* and *supports* relationships are explicitly published with attribution and authority, enabling multiple viewpoints to coexist and be selected/deselected.
- Abstraction and Annotation
 - SWAN and Micropublications both support Comments.
 - Micropublications supports translation of Claims into more or less any useful formal language capable of representing them in the required domain.
 - Micropublications re-formalizations of Claims in other micropublications are also micropublications.
- Layering
 - SWAN does not have formal mechanisms to support layering.
 - Micropublications explicitly support layering. A Micropublications may be constructed about another Micropublications, and this may be layered as deeply as one wishes.
- Grounding
 - The Micropublications model is theoretically grounded in Argumentation Theory. SWAN is not.

REFERENCES

1. Ciccarese P, Wu E, Wong G, Ocana M, Kinoshita J, Ruttenberg A, Clark T: **The SWAN biomedical discourse ontology**. *J Biomed Inform* 2008, **41**(5):739-751.