A Mathematical KR Model for
Claim Interpretation and Construction

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Claim interpretation

- KRT is the basic tool for the claim interpretation of an ETCI.

- There are three levels for the representation: original (O), aggregate (A) and elementary (E).

- The change from one level to the next is called transformation .

- The mathematical tools are predicates, sets, maps and more general relations, set theoretic constructions.

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Original level

- The basic entities are elements and concepts defined by truth sets and their mirror predicates.

- Mirror predicates are representing the properties of an ETCI disclosed by the claim and the specification.

- O-level: given by the Marked-up Units of Information (MUIs)

- found in the specification and the claim of an ETCI, representing the main properties of the ETCI.

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Compound or aggregate concepts

- First step of the KRT:

- Identify the elements of the ETCI.

- Combine each element with a concept still being a compound of smaller concepts.

- This provides the A-level concepts, A-crC.

- The connection to the O-level is given by relations between the A-level concepts the set of MUIs.

- For each A-crC this relation indicates the MUIs of relevance for this A-crC

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- Second step of the KRT:

- Disaggregate A-crCs into corresponding elementary concepts: subdivision of truth sets, decomposition of predicates,

- "Elementary" means "cannot be disaggregated anymore in a reasonable way".

- Completeness: Each A-crC is a composition of its E-crCs as the conjunction of the predicates of the E-crCs resp- truth sets of the E-crCs.

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Types of elementary concepts

- The relations between A-crCs and MUIs are extended to elementary concepts.

- Distinguish between creative and non-creative elementary concepts, E-crCs and E-ncrCs.

- E.g., elementary concepts belonging to pertinent skill are non-creative.

- Continuing with the claim construction may qualify some apparently creative concepts as non-creative.

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- Formulating E-crCs in mathematical terms guarantees definiteness.

- The union of E-crCs and E-ncrCs is relevant for the test that the ETCI is enablingly disclosed.

- The E-crCs of the given ETCI are considered to represent its creative thoughts.

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Creative height

- Comparison with prior art: peer concepts of the E-crCs are considered for each TTi to check anticipation resp. non-anticipation.

- Each suitable combination of NA-E-crCis contributes to the creative height

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Scope, exemptions, nPE

- Scope: combination (tuple) of elements of different truth sets representing an embodiment of the ETCI, contained in the product of all truth sets of the ETCI.

- Violation = nonempty intersection of scopes.

- PE-exemptions: E-crCs being a natural law or an abstract idea. They lead to preemptive ETCIs.

- The scope is an important tool for testing limited preemptivity in presence of an Alice application.

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The End

Thank you for your attention

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