

# A Systematic Approach for Creating a CRMsoc Extension

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What is CRMSoc or What would it do?

# Current (Formal) Answer

CRMsoc is a formal ontology for integrating data about social phenomena and constructs that are of interest in the humanities and social science based on analysis of documentary evidence. The scope of CRMsoc is the following areas of analysis:

- Characteristics of human beings, as individuals or groups
- Social relations, including between people, between people and groups, and between groups
- Rights and duties
- Economic activities, including relations between people and things, such as financial transactions leading to ownership
- Plans, including expressing proposed activities and legislation
- Evaluations, including assessing risks and estimating the value of things

# Current (Informal) Answer

- A place to plant problems arising for CRMbase that would hold it back
- A place to put experimental classes arising from different research projects
- A place to put classes of interest which other extensions no longer want
- A radical experiment in bottom up modelling (anything social might fit! Anything social may not be covered!)
- An incoherent collection of random classes and relations

# Why is the current state of CRMSoc a problem?

## Theory

No coherent background approach /  
conceptualization of the subject  
(have we taken 'the social' seriously?)

No connection with existing work in ontology or  
philosophy on the subject  
(bad scholarship / lack of due diligence)

## Practicality

Does not provide a reliable, well defined  
ontology you can do something with

Does not allow a community to coalesce around  
it (what is it???)

Does not allow a reasonable development cycle  
(when does a development cycle close)

Does not allow the specification of a set of test  
data structures to ground truth against

# What, nevertheless, makes CRM Soc necessary?

The palpable need to express socio-temporally bound facts

Research interest

Social justice

Objective Accuracy (of Subjective Fact!)

The lack of expressivity for socio-temporally bound facts in CRMbase

# Kinds of phenomena we want to be able to talk about

The name of the place designated as FYROM from 1991 by the Greek State

The name of the place designated as FYROM from 1991 by the Macdenonian State

The classification of certain apatosaurus and camarasaurus remains as 'Brontosaurus' for a period of time by the American Museum of Natural History

The function of St. Joe's Cathedral (Edmonton) as a minor basilica from 1984 for the Catholic community

The social status of Frierich Hegel as a Privatdozent at Jena University 1801-1805

The custodial status of G'psgolox totem pole as held by the Swedish National Museum of Ethnography for the Swedish State (1929-2006)

The ownership of the Euphronios Krater by the Moma 1972-2006 according to American law

The residential status of the Prime Minister Role at 24 Sussex Drive (1951-Present)

# What Makes Making CRMSoc hard?

## Theoretically

- Size of question
- Existing Parti Pris of CRM modelling

## Practically

- Heterogeneity of potential relevant sources
- Pandora's box / lack of scope, too ground up to be useful (actually arbitrary)



Need a restart

# What is a fact / what should be modelled?

## CRM Orthodoxy

- Model the meso level world (tables, chairs, cats and dogs)
- Model only objectively available / retrievable facts
  - Physical and social facts objectively available in the same way
  - Do not model 'subjective belief', 'opinion'
- Model for data integration
  - Do not model states only events (states destroy integration)

## But

- In the social domain, the subjective is the objective
- Subjective states (what was the case for some people) need to be first class entities
- Subjective states are the object of knowledge and research (what is reported, what is searched for)

# Some Relevant Background Ontological Research

## Ontologists / Knowledge Engineers

- **Gangemi**  
Gangemi, Aldo. "Norms and plans as unification criteria for social collectives." *Autonomous Agents and Multi-Agent Systems* 17.1 (2008): 70-112.
- **Doerr**  
Doerr, Martin. "The CIDOC Conceptual Reference Module: An Ontological Approach to Semantic Interoperability of Metadata." *AI Magazine*, vol. 24, no. 3, 2003, p. 75.
- **Mika**  
Mika, Peter. "Descriptions of Social Relations." Found @ [https://www.w3.org/2001/sw/Europe/events/foaf-galway/papers/fp/descriptions\\_of\\_social\\_relations/](https://www.w3.org/2001/sw/Europe/events/foaf-galway/papers/fp/descriptions_of_social_relations/)
- **Beretta**  
Beretta, Francesco. "A challenge for historical research: making data FAIR using a collaborative ontology management environment (OntoME)" - Forthcoming

## Philosophers

- **Searle**  
Searle, John R., and S. Willis. *The construction of social reality*. Simon and Schuster, 1995.
- **Tuomella**  
Tuomela, Raimo. "The importance of us: A philosophical study of basic social notions." (1995).

# Re-approaching facts, distinguishing the social

CIDOC CRM modelling successfully enables data integration through a practical elision that treats physical and social facts as equally 'present' and 'accessible'

Noting the fact of a name and noting the fact of a part whole relation between a table and its leg are put on the same level

Merging these two types of facts naturalizes both physical and social facts, a useful convenience for data integration, a problem for recording and understanding social life

**Radical response** to this (Gangemi) would argue ALL facts ('physical' and 'social') are social and constructed, requiring always already the intervention of a cultural linguistic frame of interpretation to create a frame of reference in which to articulate and isolate facts

**Measured response** to this (Searlean) would point out that some facts are distinctly social, those that are in no way determined by physics but only by a communal mental symbolic construction (names, rights, status etc.)

# The Present Proposal

## A new scope for CRMSoc

- Records of social fact

## A new theoretical base for CRMSoc

- Recognize the substance of social facts is collective intentionality
- Recognize the function of performatives in generating social facts

In the social domain, the subjective is the  
objective

# Some useful distinctions

## Predicates of Entities

### **Ontologically Objective:**

independent of perceiving subject,  
Mt. Kilimanjaro

**Ontologically Subjective:** depend  
on a perceiving subject, e.g.: pains

## Predicates of Judgments

**Epistemically Objective:** facts in the  
world make these true or false,  
“Rembrandt lived in Amsterdam  
during the year 1632”

**Epistemically Subjective:** not bound  
by fact but dependent on judgment  
and opinion, “Rembrandt is better  
than Rubens”

# The Objective world has intrinsic features but also intentionally dependent features

Taking an object 'as something' is intrinsic to intentional agents.

(ontologically subjective BUT epistemically objective) -> e.g.: intrinsic is “Earthquakes often occur where tectonic plates meet.” observer relative, “earthquakes are bad for real estate values.”

“To put it very crudely, something is a screwdriver only relative to the fact that conscious agents regard it as a screwdriver; but the fact that conscious agents have that attitude is itself an intrinsic feature of the conscious agents.” pp.11

“Intrinsic features of reality are those that exist independently of all mental states, except for mental states themselves, which are also intrinsic features of reality.” pp.12



# Three Searlean elements for talking about social fact

## X Counts as Y in C

**The assignment of Function** “Functions are never intrinsic but are always observer relative.” pp.14

**Collective Intentionality** “Collective intentionality is a biologically primitive phenomenon that cannot be reduced to or eliminated in favour of something else.”  
“No set of ‘I consciousnesses’ even supplemented with beliefs, adds up to a ‘We consciousness’” pp.24

**Constitutive Rules** “The key element in the move from the collective imposition of function to the creation of institutional facts is the imposition of a collectively recognized status to which a function is attached.” pp.41

# New Class “Institutional Fact”

## ZE1 Institutional Fact

Subclass                                      of:                                      E2                                      Temporal                                      Entity

An instance of institutional fact is an ascription of a status function to an object by a community. The institutional fact is a concretization of a collective intentionality of the community in question towards a certain object over a certain period. An instance of institutional fact is recognizable to a competent speaker/member of a symbolic community (native or learner with sufficient progress, e.g. anthropologist). Typically, an instance of institutional fact will come into existence either because of the performance of its stipulated, initiating speech act (e.g.: state of being married via marriage) or as a result of events fulfilling existing norm prescriptions in the community (e.g.: state of being father as result of birth of child of sister). An institutional fact comes to be through the agreed fiat of a community. It typically ceases to exist either because of a stipulated, nullifying speech act (e.g. divorce proceeding), because a community ceases to support the effective rule supporting its declaration (e.g.: ownership of people) or force majeure (e.g.: object ascribed function/status or community perceiving status is eliminated).

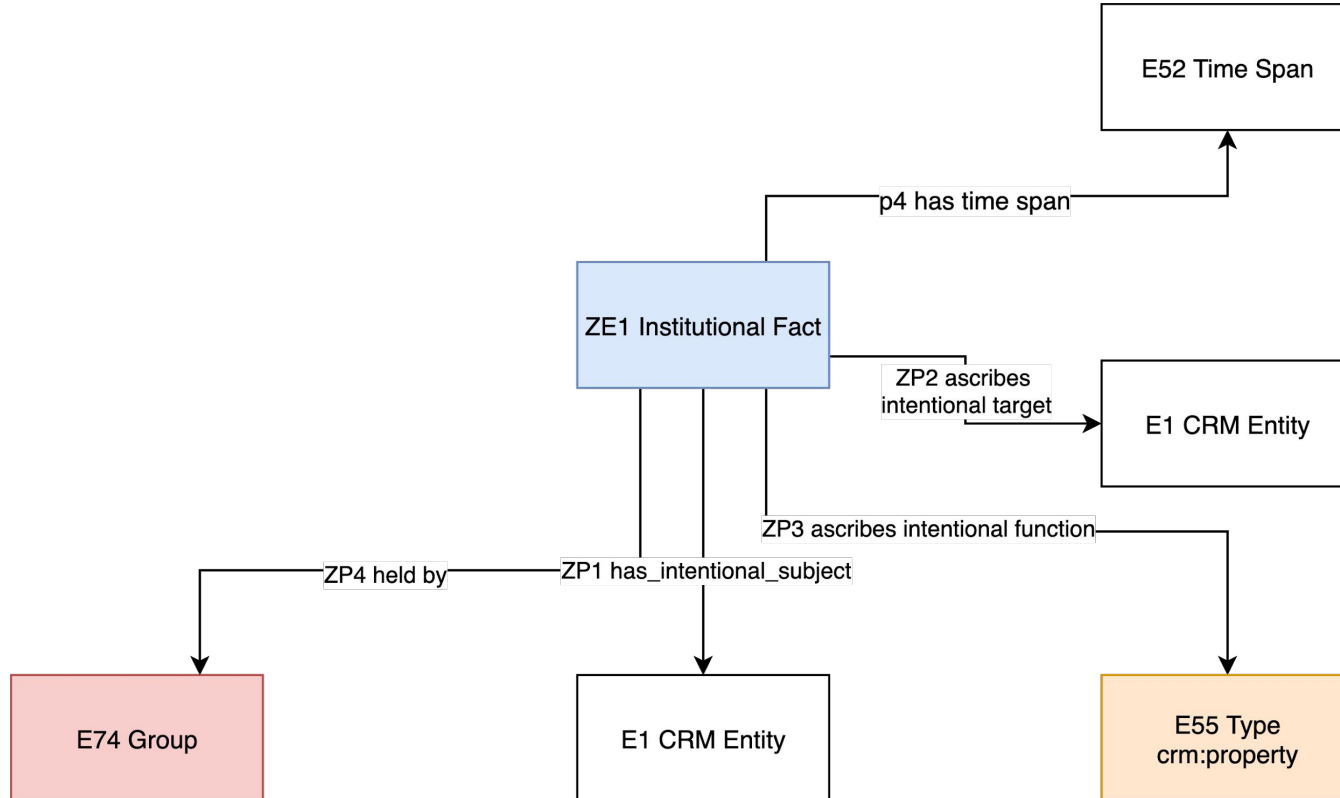
ZP1 has intentional subject

ZP2 ascribes intentional target

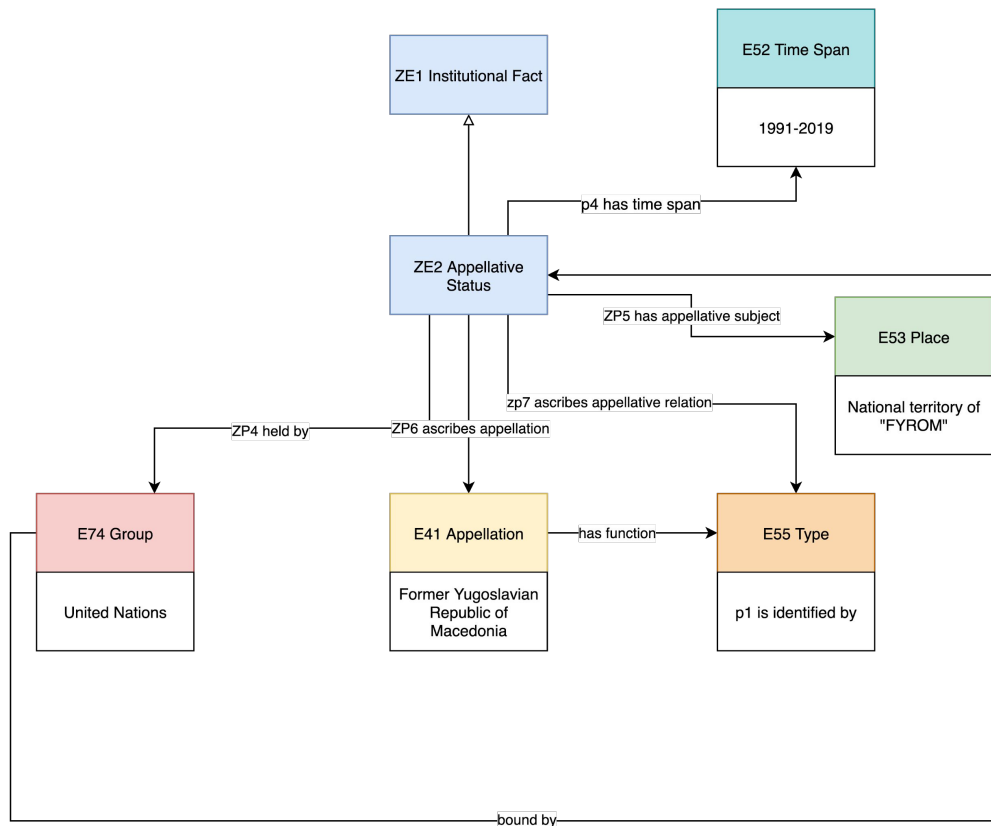
ZP3 ascribes intentional relation

ZP4 holds for

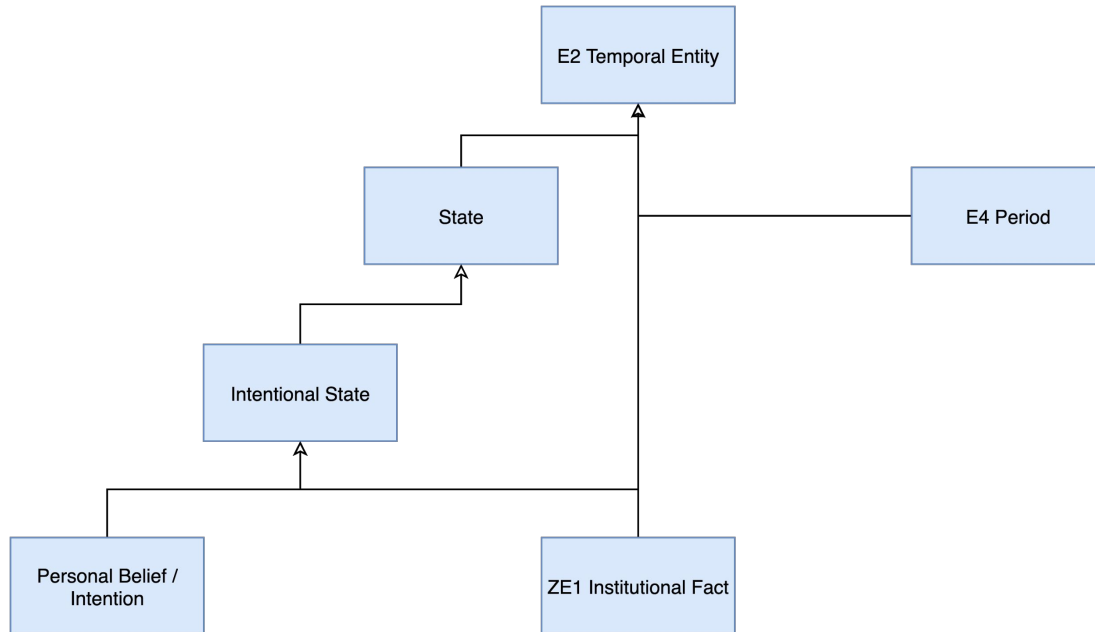
# New Class “Institutional Fact” Features



# New Class “Institutional Fact” Example



# New Class “Institutional Fact” in Hierarchy



## ZE1 Institutional Fact

An institutional fact is a social process, it is temporal in nature but does not have a geographic extent (it occurs in the life of the social mind).

The institutional fact plays into the controversy over ‘states’ in CRM modelling and into the question of representation of mental states.

Initially we may simply place it under temporal entity to gain the time property, eventually integrating it into a more well developed picture of ‘state’ and the sub question of modes of ‘mental state’.

# New Class “Speech Act”

## ZE13 Speech Act

Subclass of: E7 Activity  
Superclass of: E13 Attribute Assignment

An instance of speech act comprises an intentional activity engaged in by a set of actors to create a new institutional fact within a community. Speech acts are carried out through invoking a social rule and performing a prescribed set of actions often including the location of set formulae. Correct execution of the speech act as specified by the rule results in the existence of new institutional facts. The substance of speech act is ritual action by a group. An instance of speech act begins when the intended ritual proceeding as specified by the rule invoked is initiated. The instance of speech act ends when the required set of actions specified for the action in question are executed or it is abandoned.

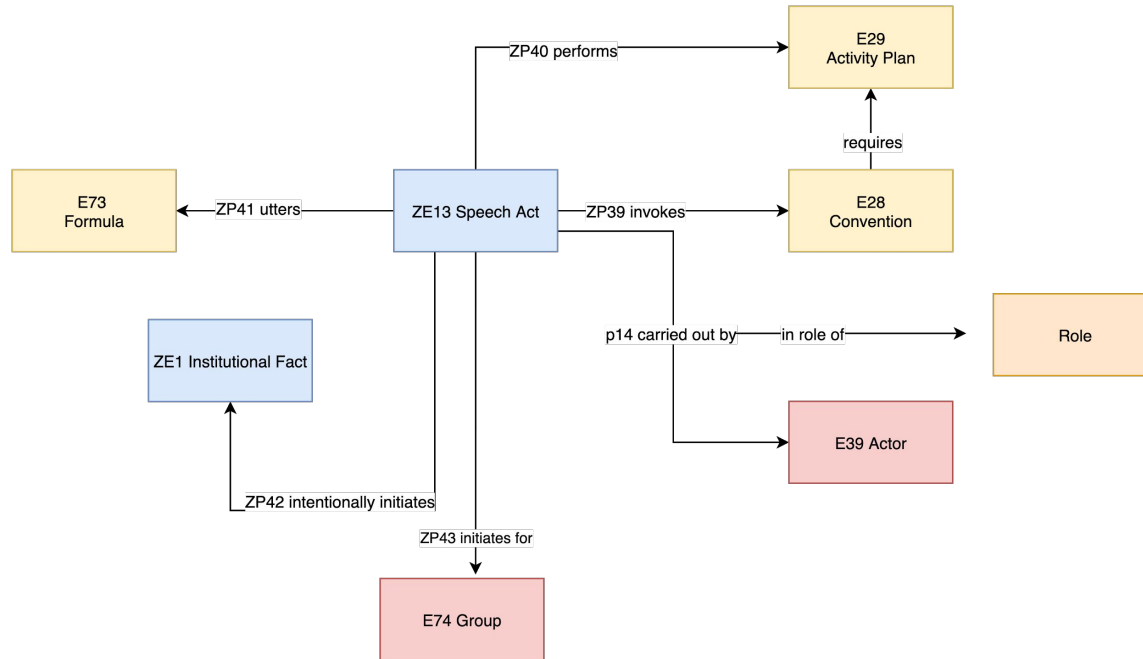
ZP39 invokes [D: ZE13, R:E29]

ZP40 performs [D: ZE13, R:E29]

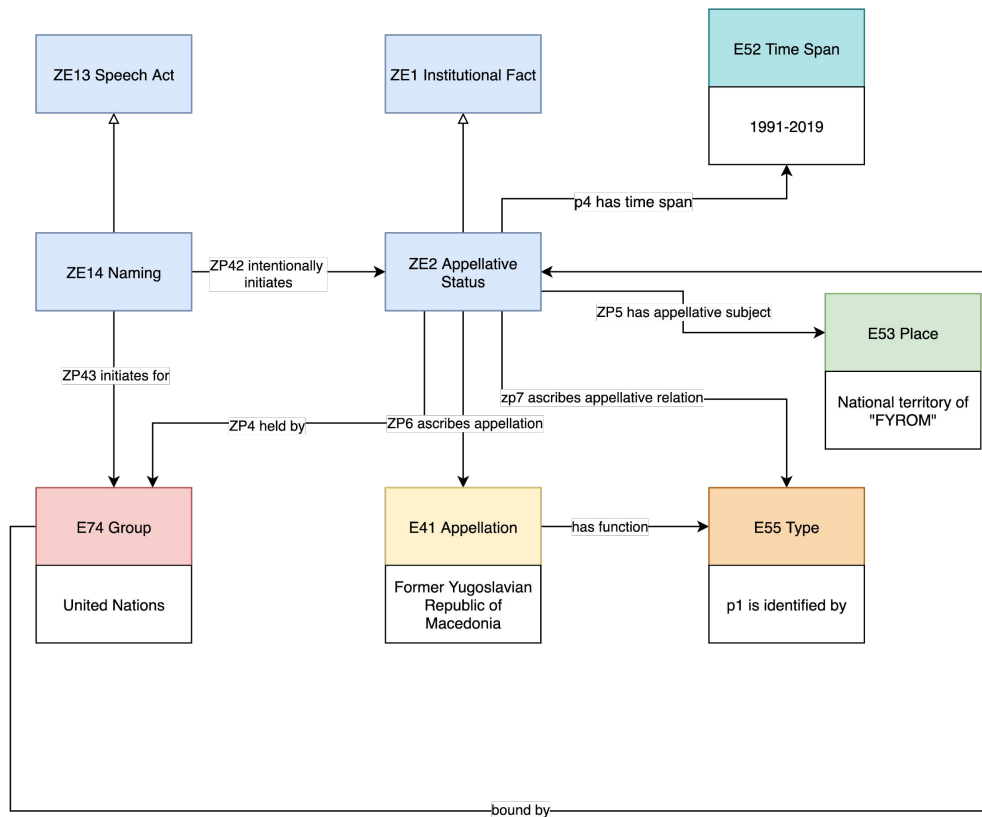
ZP41 utters [D: ZE13, R:E33]

ZP42 intentionally initiates [D: ZE13, R:ZE1]

# New Class “Speech Act”

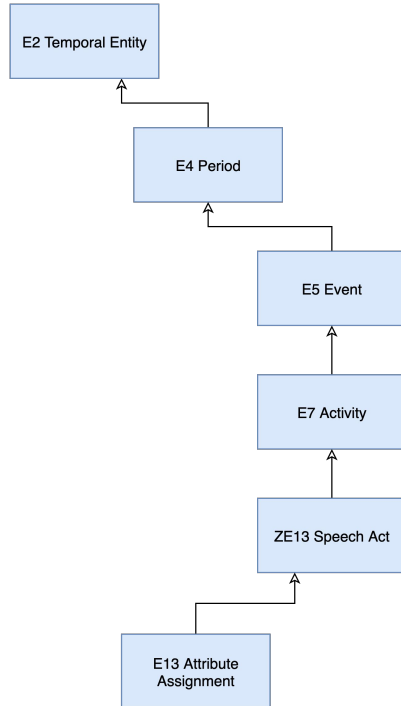


# New Class “Speech Act” Example





# New Class “Speech Act” in Hierarchy



## ZE13 Speech Act

A speech act is an intentional activity to bring about a new social state.

Such acts are already hiding in plain sight in CRMbase, attribute assignment.

E13 Attribute Assignment turns out to be a compression of the initiating act and the fact established.

Speech act becomes a super class of E13 Attribute Assignment and when invoking CRMSoc, the pattern for creating institutional facts would be followed instead of the P140 and P131 constructs

# Method to elaborate a useful CRMSoc

- Analyze CIDOC CRM base and isolate social from physical facts: create new classes and relations to express positively (e.g. [E30 Right](#), a 'hidden' social fact)
- Connect proposed classes and relations to existing work on Activity Plans (actually describes rules for actions like speech acts)
- Return to already proposed CRMSoc classes and relations and integrate content to this work
- Test against real data sets! (Symogih.org/CHIN)
- Put it all in OntoMe and publish it

**Social facts require expression as positive phenomenon:**

the fact that some group takes x as y for some time

**Social facts require expressed initiating actions:**

Formalized social acts under rules that bring about social states

Enrich CRMbase's expressivity by extending it with the social states that result from formal social actions as a consistent extension of base properties

# Analyzing CRMbase for Social Facts: Method

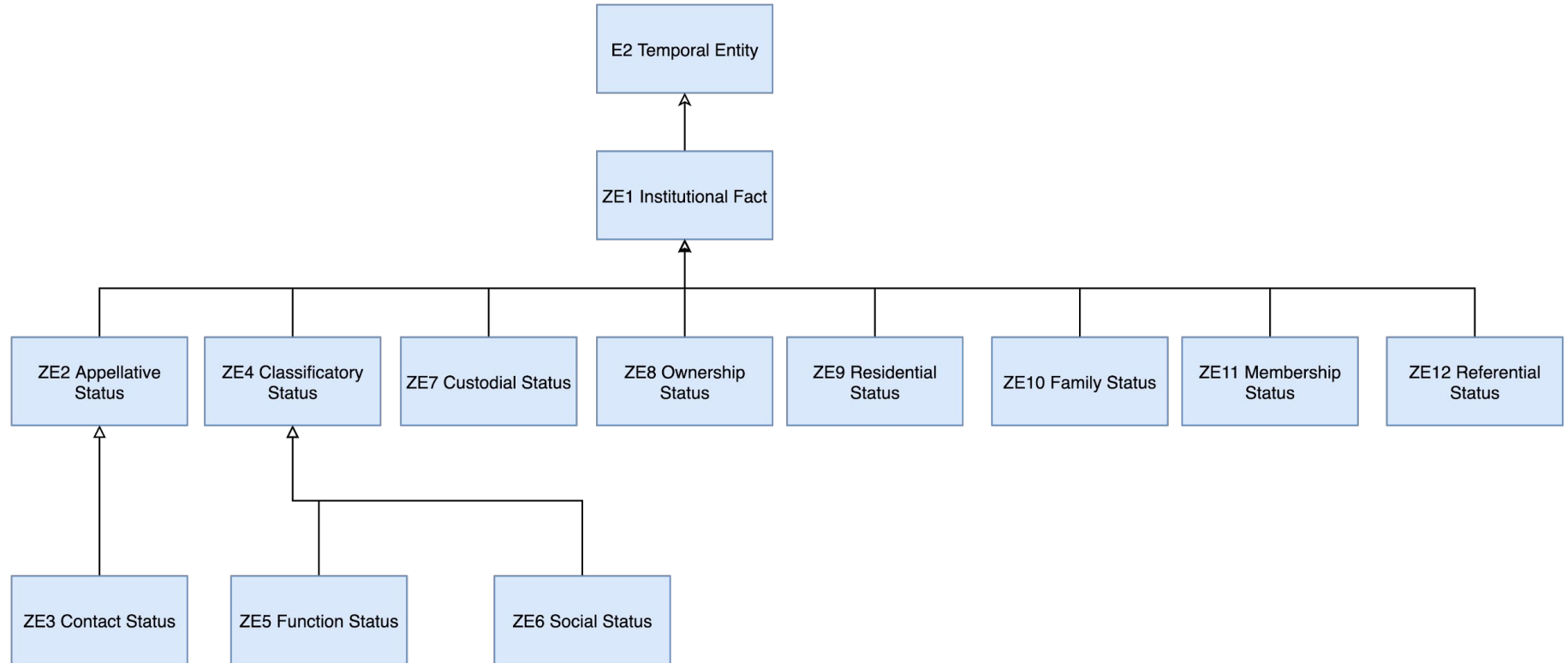
Could my dog see this as an objective fact?

What are the areas of social relation already defined in CRM? Identify their domain of application (that's an institutional fact)

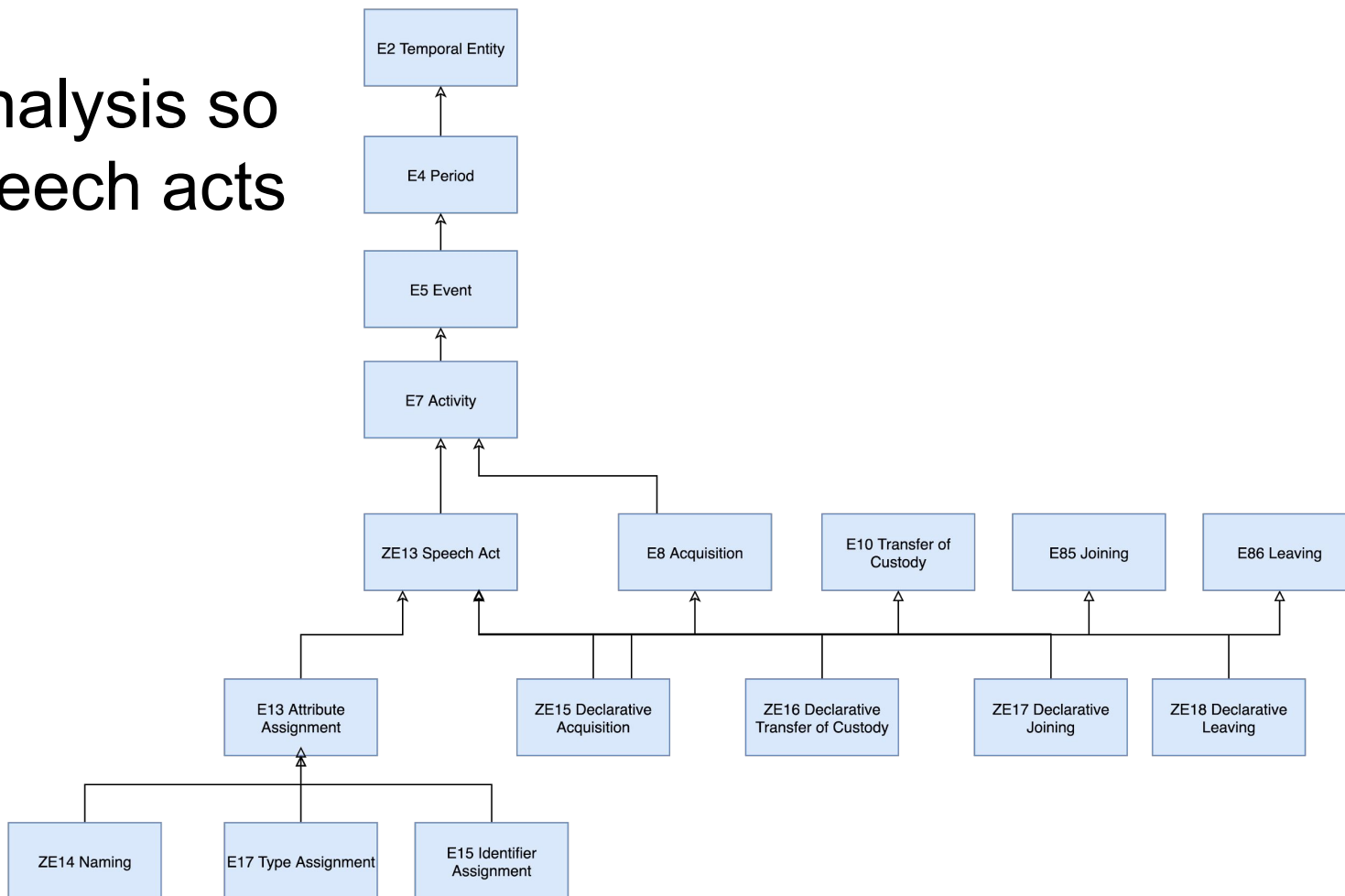
Institutional facts need associated declarative events that cause them to exist. Presently only E13 acts in this way, all other classes have a looser interpretation. Therefore, multi inheritance classes from speech act with extant classes necessary to support social reasoning (what social activity caused this to be? What were its parameters?)



# The analysis so far: institutional facts



The analysis so far: speech acts



- E2 Temporal Entity
  - ZE1 Institutional Fact
    - ZE2 Appellative Status
      - ZE3 Contact Status
        - ZE4 Classificatory Status
          - ZE5 Function Status
          - ZE6 Social Status
    - ZE7 Custodial Status
    - ZE8 Ownership Status
    - ZE9 Residential Status
    - ZE10 Family Status
    - ZE11 Membership Status
    - ZE12 Referential Status
  - E4 Period
    - E5 Event
      - E7 Activity
        - ZE13 Speech Act
          - E13 Attribute Assignment
            - ZE14 Naming
            - E15 Identifier Assignment
            - E17 Type Assignment
      - E8 Acquisition
        - ZE15 Declarative Acquisition
      - E10 Transfer of Custody
        - ZE16 Declarative Transfer of Custody
      - E85 Joining
        - ZE17 Declarative Joining
      - E86 Leaving
        - ZE18 Declarative Leaving

# New CRMSoc Classes from CRMbase Analysis

# New CRMSoc Relations from CRMbase Analysis

ZP1 has intentional subject [D: ZE1, R: E1]

    ZP5 has appellative subject [D:ZE2, R:E1]

        ZP8 has contact subject [D:ZE3, R:E39]

    ZP11 has classificatory subject [D:ZE4, R:E1]

        ZP14 has functional subject [D:ZE5, R:E72]

        ZP17 has social subject [D:ZE6, R:E39]

    ZP20 has custodial subject [D:ZE7, R:E19]

    ZP23 has ownership subject [D:ZE8, R:E72]

    ZP26 has residence subject [D:ZE9, R:E39]

    ZP29 has family subject [D:ZE10, R:E21]

    ZP32 has membership subject [D:ZE11, R:E39]

    ZP35 has referential subject [D:ZE11, R:E89]

ZP2 ascribes intentional target [D: ZE1, R:E1]

    ZP6 ascribes appellation [D: ZE2, R:E41]

        ZP9 ascribes contact point [D:ZE3,R: E41]

    ZP12 ascribes classification [D:ZE4, R:E55]

        ZP15 ascribes function [D:ZE5, R:E55]

        ZP18 ascribes social status [D:ZE6, R:E55]

    ZP21 ascribes custodian [D:ZE7, R:E39]

    ZP24 ascribes owner [D:ZE8, R:E39]

    ZP27 ascribes residence place [D:ZE9, R:E53]

    ZP30 ascribes relative [D:ZE10, R:E21]

    ZP33 ascribes group [D:ZE11, R:E74]

    ZP36 ascribes referent [D:ZE12, R:E1]

ZP3 ascribes intentional relation [D: ZE1, R:E55]

    ZP7 ascribes appellative relation [D: ZE1, R:E55]

        ZP10 ascribes contact point relation [D: ZE3, R:E55]

    ZP13 ascribes classification relation [D: ZE4, R:E55]

        ZP16 ascribes functional relation [D: ZE5, R:E55]

        ZP19 ascribes social status relation [D: ZE6, R:E55]

    ZP22 ascribes custodial relation [D: ZE7, R:E55]

    ZP25 ascribes ownership relation [D: ZE8, R:E55]

    ZP28 ascribes residence relation [D: ZE9, R:E55]

    ZP31 ascribes family relation [D: ZE10, R:E55]

    ZP34 ascribes group relation [D: ZE11, R:E55]

    ZP37 ascribes referential relation [D: ZE12, R:E55]

    ZP38 ascribes referential mode [D: ZE12, R:E55]

ZP4 holds for [D: ZE1, R:E74]

ZP39 invokes [D: ZE13, R:E29]

ZP40 performs [D: ZE13, R:E29]

ZP41 utters [D: ZE13, R:E33]

ZP42 intentionally initiates [D: ZE13, R:ZE1]