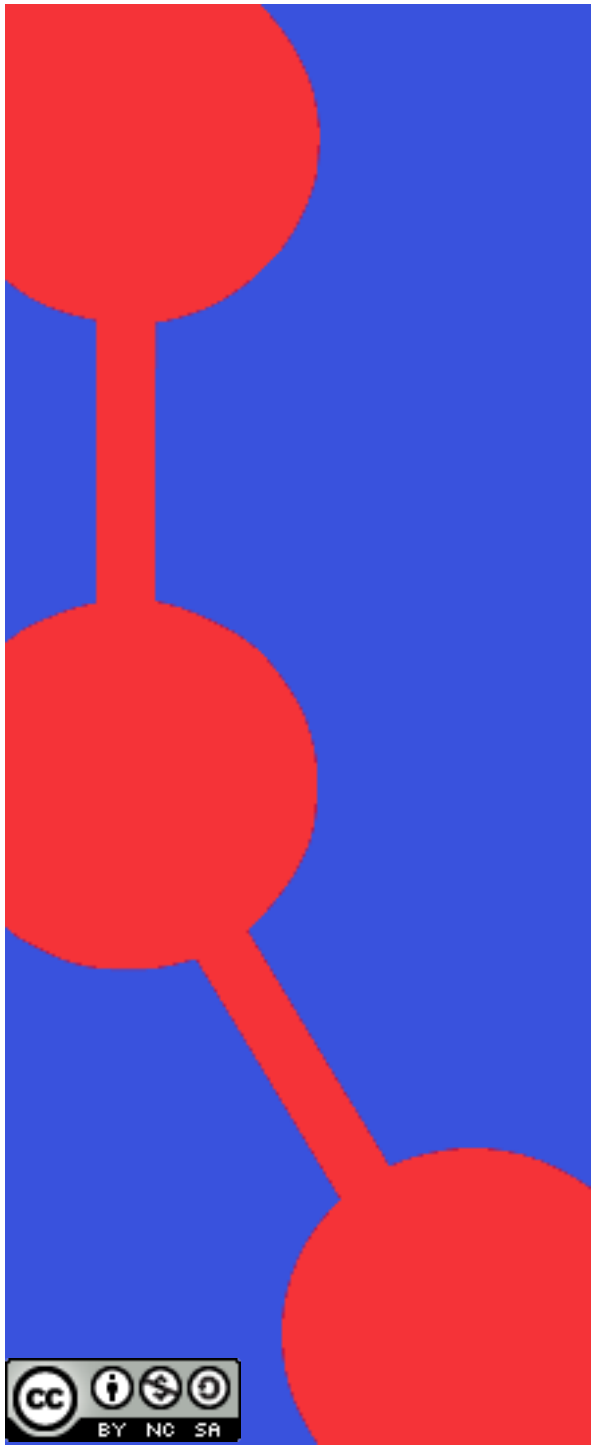

10 basic rules to overcome ontology engineering deadlocks in collaborative ontology engineering tasks

Ontology Summit 2014
Track-C: Overcoming Ontology Engineering Bottlenecks – II
20/03/2014

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Context

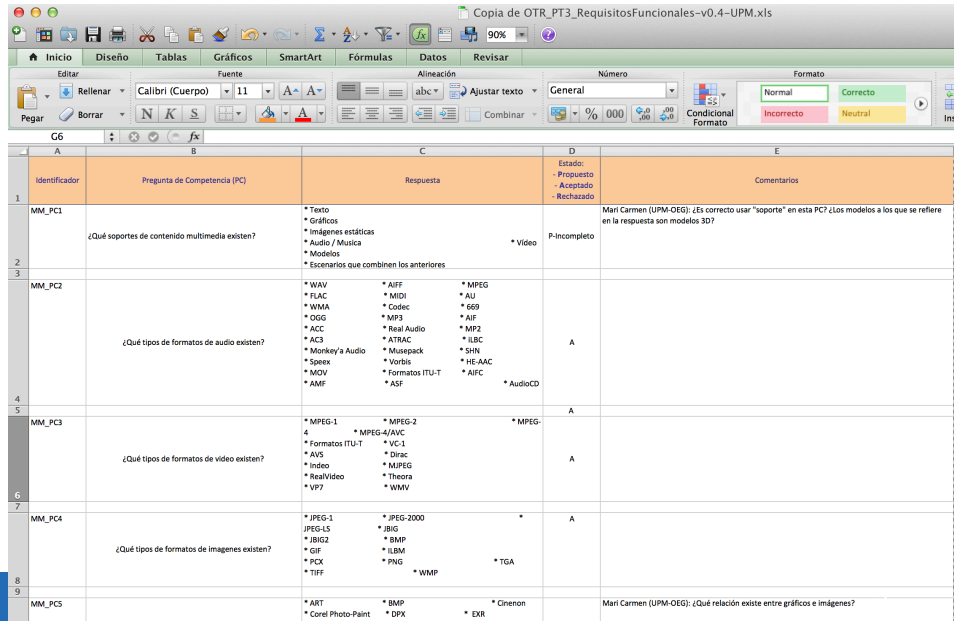
- Project BuscaMedia
  - http://www.cenitbuscamedia.es/
  - Already finished
  - A collaborative Spanish project to generate a search engine for multilingual multimedia multi-domain content
  - Multiple and very generic domains (sports, news, etc.)
  - Private tech companies, universities, content providers
- AENOR CTN 178 group on open data for smart cities
  - SC3 Gobierno/movilidad, GT1 Gobierno, SG1 Open Data
  - Starting now the real work on ontologies (to be finished by June 2014)
  - Provision of common vocabularies for datasets from open data portals
  - Private companies and public administrations (mostly cities and regions)

Starting the ontology engineering process…

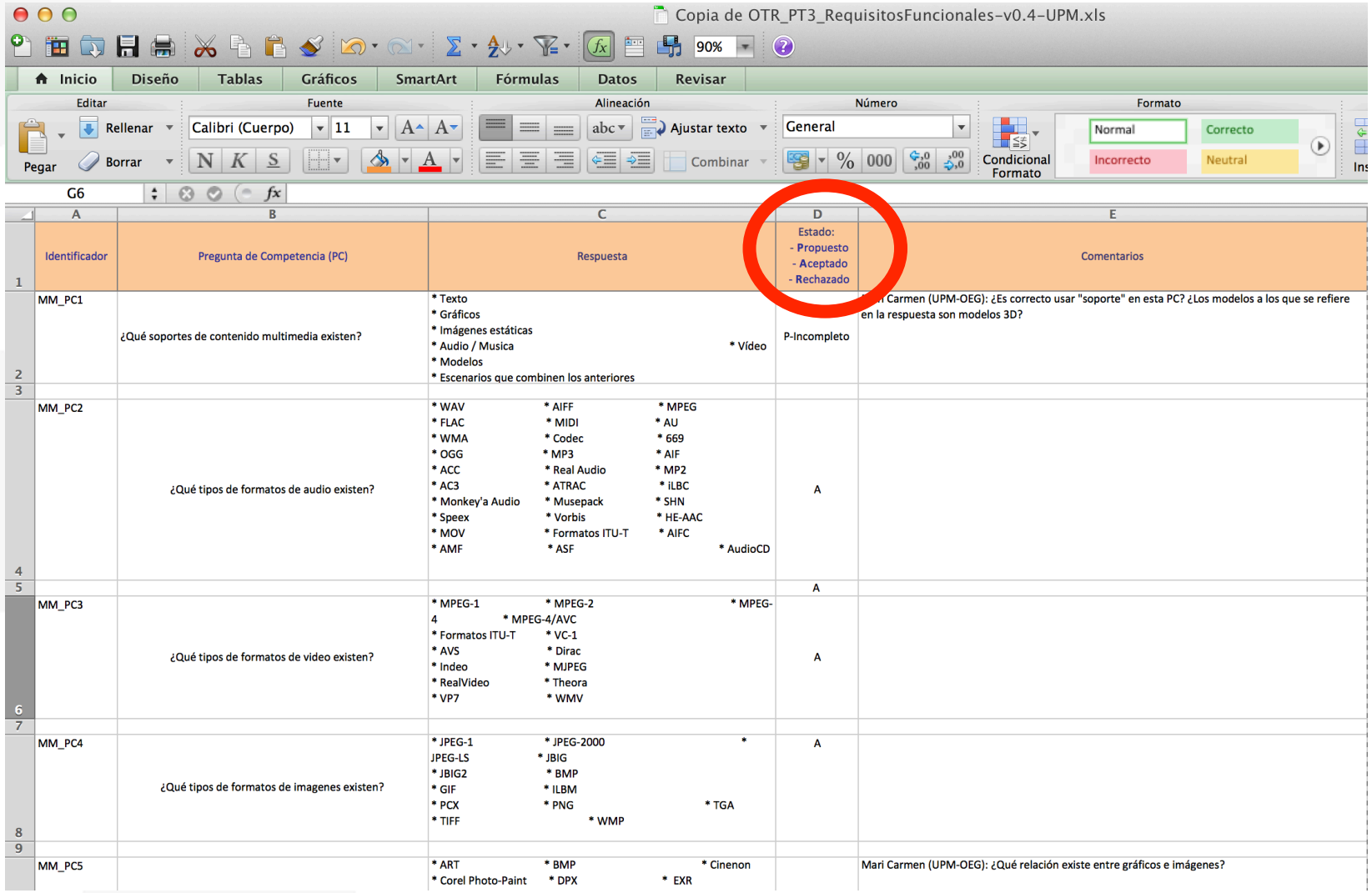
Deadlock 1. Which ontology tool do we use?

- Which tool do we use?
  - Standalone
    - Protege / NeOn Toolkit / TopBraid Composer
  - Collaborative
    - WebProtege

- When starting, users are not worried about tools, but about discussing
  - Rec1: Use Excel (standalone or Google Docs)
  - Not just for requirements, also for documentation



Deadlock 1. Which tool do we use?



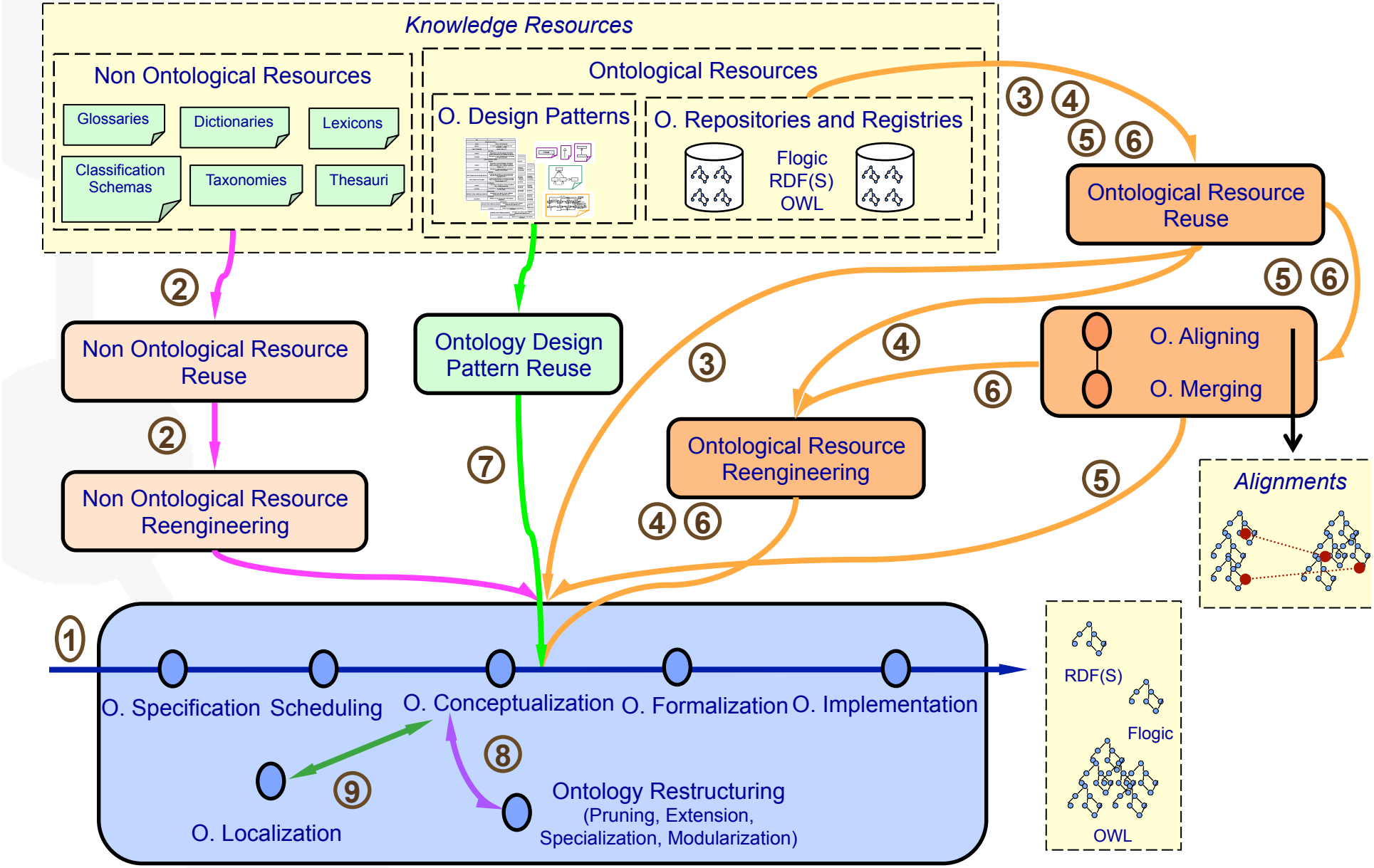
	A	B	C	D	E
1	Identificador	Pregunta de Competencia (PC)	Respuesta	Estado: - Propuesto - Aceptado - Rechazado	Comentarios
2	MM_PC1	¿Qué soportes de contenido multimedia existen?	* Texto * Gráficos * Imágenes estáticas * Audio / Musica * Vídeo * Modelos * Escenarios que combinen los anteriores	P-Incompleto	Mari Carmen (UPM-OEG): ¿Es correcto usar "soporte" en esta PC? ¿Los modelos a los que se refiere en la respuesta son modelos 3D?
3					
4	MM_PC2	¿Qué tipos de formatos de audio existen?	* WAV * AIFF * MPEG * FLAC * MIDI * AU * WMA * Codec * 669 * OGG * MP3 * AIF * ACC * Real Audio * MP2 * AC3 * ATRAC * iLBC * Monkey'a Audio * Musepack * SHN * Speex * Vorbis * HE-AAC * MOV * Formatos ITU-T * AIFC * AMF * ASF * AudioCD	A	
5				A	
6	MM_PC3	¿Qué tipos de formatos de video existen?	* MPEG-1 * MPEG-2 * MPEG-4 * MPEG-4/AVC * Formatos ITU-T * VC-1 * AVS * Dirac * Indeo * MJPEG * RealVideo * Theora * VP7 * WMV	A	
7					
8	MM_PC4	¿Qué tipos de formatos de imagenes existen?	* JPEG-1 * JPEG-2000 * JPEG-LS * JBIG * JBIG2 * BMP * GIF * ILBM * PCX * PNG * TGA * TIFF * WMP	A	
9					
	MM_PC5		* ART * BMP * Cinenon * Corel Photo-Paint * DPX * EXR		Mari Carmen (UPM-OEG): ¿Qué relación existe entre gráficos e imágenes?

Deadlock 2. I have been told to reuse other ontologies

- We all recommend reusing other ontological and non-ontological resources
  - That's the basis of ontological engineering
- However, this should not be done at an early state of ontology development
  - It causes confusion
    - Should I use FOAF, or the Organization Ontology, or vCard, or schema.org?
    - And prevents people from being creative
  - It causes endless discussions about terms (and lots of problems with translations)

- Rec2: start working with experts so that they provide their definitions, and get agreements on those

Deadlock 3. The methodology tells me to…



Deadlock 3. The methodology tells me to…

- There are lightweight and heavyweight methodologies
  - The NeOn Methodology accounts for both cases
  - But do not explain much to domain experts…

- Rec3: use an agile approach, based on sets of competency questions for each sprint

Now we start implementing the ontologies…

Deadlock 4. Large groups work more slowly

- Sprint mode (as I commented before)
- Prefer small groups of experts with a few ontology engineers
  - Personally I prefer groups of five people (4 experts + 1 ontology engineer)

- Rec4: Avoid non-experts, and use all experts from the same level
  - Avoid differences in ontology goals

Deadlock 5. But these ontologies to reuse are in English

- Context:
  - Most of the ontologies that we have developed in these projects/initiatives are for Spanish users
  - But when it comes into reusing other ontologies, those are normally using English identifiers
- We all know that identifiers are not the most important element
  - e.g., labels and comments in different languages should be enough
- Main question:
  - Can we mix term identifiers in different languages?
  - Do we translate all terms to our language?

- Rec5: generate all terms in your language (extending existing ones in other languages)

Deadlock 6. I want my ontology to do inferences…

- OWL (and description logics) is funny to teach at University
  - I enjoy teaching DL, showing the niceties of reasoning, consistency checking, etc.
  - It is useful in many domains
  - But developing such ontologies is a task for hardcore ontology engineers (not for public administration tech people)

- Rec6: Just work with text patterns, and guide them to write good term definitions
  - A district contains only neighbourhoods and census sections
  - A shop can have at most three economic activities associated to it

Deadlock 7. I want my ontology to be ligthweight…

- I want my ontology to be used for Linked Data publishing
  - I have been said not to put domains or ranges
  - I have been said to create only light taxonomies
  - I have been said to use only RDF Schema

- Rec7: again, text patterns are the best option to follow here
  - Don’t make your experts worry about languages or formal aspects

And assuming that we have the OWL/RDFS files…

Deadlock 8. The ontology is done, but is it good?

- We have been said that the ontology has to be consistent
  - And I load it in Protégé, run the reasoner and it says that everything is ok
  - So no more work is needed… Let's go home

- Rec8: it's ok to run the reasoner, but that won't tell you enough. Go for other non-logical checks (e.g., use the Oops! Pitfall scanner)
  - http://www.oeg-upm.net/oops/
  - But do not get obsessed with it

Deadlock 9. How do I tell others how to use the ont?

- The ontology is now done, it has been agreed by a group of people, but…
  - Should I put the OWL/RDFS ontology somewhere?
  - How do I explain people how to use it?

- Rec9: simple documentation (in HTML, in Word), with simple examples, with a link to the revised competency questions, and a simple diagram!!
  - E.g., HTMLTemplateGenerator based on LODE (https://github.com/dgarijo/HtmlTemplateGenerator)
  - Examples at http://vocab.linkeddata.es/

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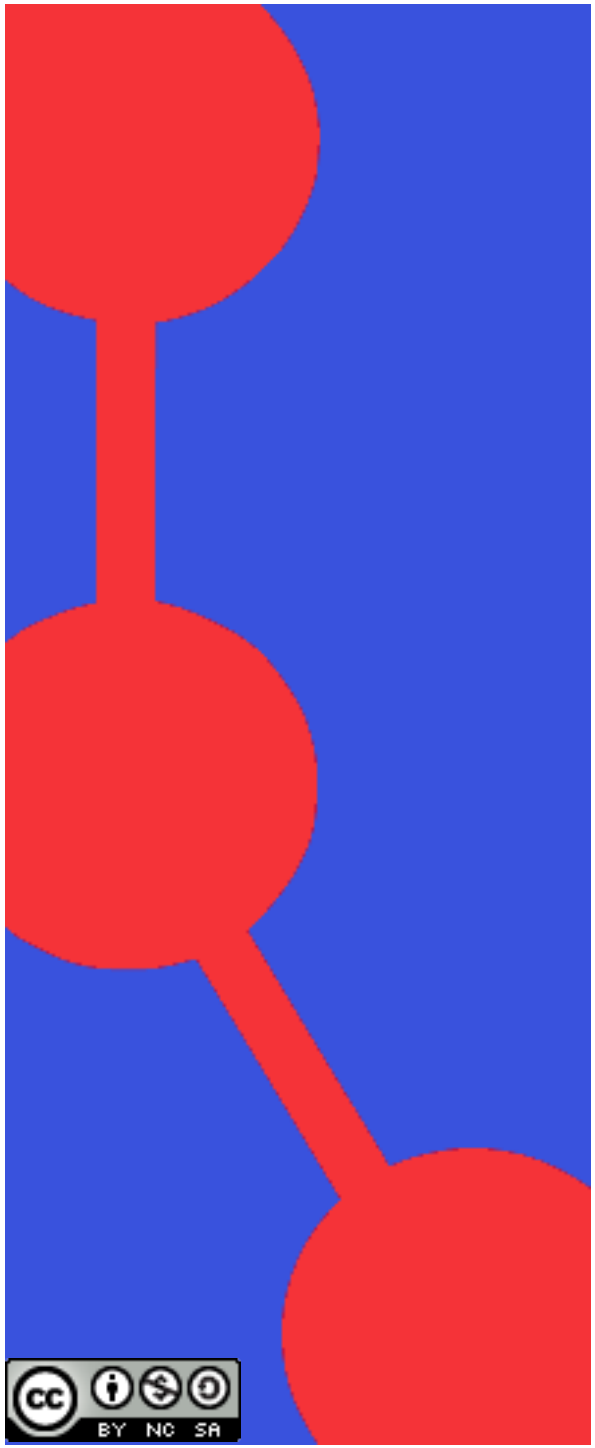

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