SAME_AS - Discussion

The **SAME_AS** association type exists to declare when any pair of different concept identifiers in fact represent exactly the same semantics. They are true semantic duplicates, for all time.

Because of this statement of unambiguous and exact, bidirectional semantic equivalence, (A) **SAME_AS** (B) explicitly implies that **everything** ever subsequently said about B is, by definition, also true of A. (And, technically, also *vice versa* though, since A is inactive, nothing new should ever be said about it)

Where (A) **SAME_AS** (B), there will *usually* be an entry for (A) in the 900000000000489007 Concept inactivation indicator reference set, linking that in active conceptId with the inactivation reason 900000000000482003 Duplicate (foundation metadata concept). Note however that some significant number of **SAME_AS** associations *also* exist on concepts where the inactivation reason is 900000000000486000 Limited.

Unlike many other flavours of history association, the **SAME_AS** association is therefore also "symmetric": (A) **SAME_AS** (B) *always by definition implies* (B) **SAME_AS** (A).

(The association is, technically, also "reflexive" A **SAME_AS** A is always trivially true for all A. By contrast, neither A **REPLACED_BY** A, nor A **POSSIBLY_EQUIVALENT_TO** A could ever be true.)

Origins

In the early days of SNOMED, during the period when SNOMED RT and the UK's Clinical Terms Version 3 (CTV3) were being merged, many such pairs of semantically identical but different concept identifiers were *deliberately* created: the initial stage of the merger involved adding a new SNOMED identifier for every unique CTV3 code. Where both CTV3 and RT had previously had codes for the same clinical notion, this would therefore inevitably mean there would now be at least two SNOMED codes for the same thing - sometimes in fact *more* than two, because both CTV3 and SNOMED RT themselves already contained both deliberate and as yet undiscovered duplicates of their own.

Many of these deliberate primordial duplicates were easily identified from the beginning, either because they shared the same Fully Specified Name or (more frequently) because they had, in fact, *already* been identified as equivalents separately within either CTV3 or SNOMED RT and those terminologies already represented this equivalence between their own identifiers within their own release data.

Whenever so identified, all but one from each set of duplicates were in fact added to SNOMED as inactive from the outset (they were never active concepts) , each with a **SAME_AS** association pointing at the only remaining active member of the set. For example, although the following 5 concepts were created in the first release of SNOMED in 2002, the final two in the list below (in blue) were recognised as trivially identical to the first in the list and so were added to SNOMED as inactive from the outset; they have never been active concepts in SNOMED:

CODE and FULLY SPECIFIED NAME	ORIGIN
35547002 Polyotia (disorder)	CTV3 XE2Qg
204244000 Supernumerary ear (disorder)	CTV3 P410.
41213009 Supernumerary external ear (disorder)	SNOMED RT D4-B0055
156904007 Polyotia (disorder)	CTV3 .N151
204243006 Polyotia (disorder)	CTV3 P41..

The same 2002 release therefore *also* included two SAME_AS associations:

156904007 **SAME_AS** 35547002
204243006 **SAME_AS** 35547002

In 2008, the remaining trio of active concepts were identified to be also mutual duplicates. Accordingly, two were rendered inactive and with SAME_AS associations declared:

204244000 **SAME_AS** 35547002
41213009 **SAME_AS** 35547002

Current application

As can be seen from the above example, identifying all the semantic duplicates created by the merger of two terminologies can take a long time and so may still not be entirely complete. It is therefore likely that some volume of future applications of the SAME_AS association will yet be required to continue this primary cleansing of the data.

However, in addition to sets of semantic duplicates having been introduced in 2002 as a result of the merger, over the years some quantity of other duplicates have also been accidentally added by authors de novo. When these are discovered, they are however subjected to exactly the same treatment: one of each pair remains active; the other becomes inactive (Duplicate) and with a new **SAME_AS** association pointing at the active concept.

For example, in January 2018 the following concept was added to the SNOMED International release:

735744000 Fracture of spine due to birth injury (disorder)

However, a very similar concept had already existed in SNOMED since 2002 (and was, in fact, taxonomically a sibling of the new code):

64728002 Fracture of spine due to birth trauma (disorder)

This accidental duplicate was identified soon after, with the result that the July 2018 release declared the new concept as inactive (duplicate), and with new **SAME_AS** association:

735744000 **SAME_AS** 64728002

Combinatorial Logic:

Whenever an already stated **SAME_AS** target itself also becomes inactive - whether at the same release or later - the combinatorial logic of associations should be:

(A) **SAME_AS** (B) *and* (B) **SAME_AS** (C) *implies* (A) **SAME_AS** (C)

(A) **SAME_AS** (B) *and* (B) **REPLACED_BY** (C) *implies* (A) **REPLACED_BY** (C)

(A^{IntEd}) **SAME_AS** (B^{IntEd}) *and* (B^{IntEd}) **MOVED_TO** (C^{NRC}) *implies* (A^{IntEd}) **MOVED_TO** (C^{NRC})[1]

(A) **SAME_AS** (B) *and* (B) **POSSIBLY_EQUIVALENT_TO** (C OR D) *implies* (A) **POSSIBLY_EQUIVALENT_TO** (C OR D)

(A) **SAME_AS** (B) *and* (B) **WAS_A** (C AND D) *implies* (A) **WAS_A** (C AND D)

Notes:

1. *Once MOVED_TO the NRC we (SNOMED International) have no knowledge of what has happened to* B^{IntEd}