

A frame-based analysis of synaesthetic metaphors

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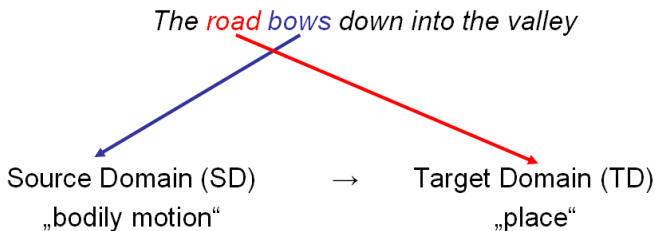
A Figure of Speech 2007, Riga



outline

- 1 Synaesthetic metaphors
- 2 Frames of synaesthetic metaphors

metaphors



Metaphor: a mapping from SD onto TD and $SD \neq TD$

synaesthetic metaphors

SD – TD

nice thought

not synaesthetic

SD_{Perceptual} – TD

red sadness

weakly synaesthetic

SD – TD_{Perceptual}

sad redness

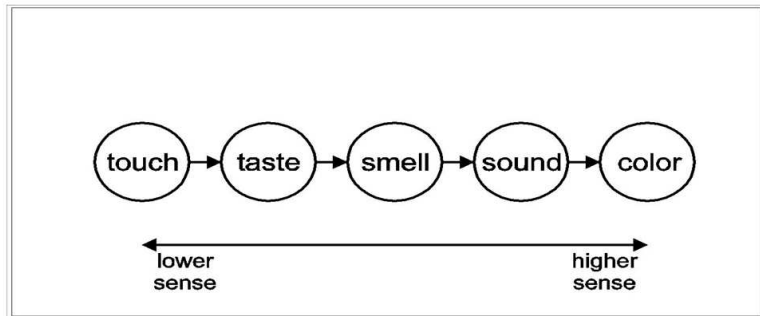
weakly synaesthetic

SD_{Perceptual} – TD_{Perceptual}

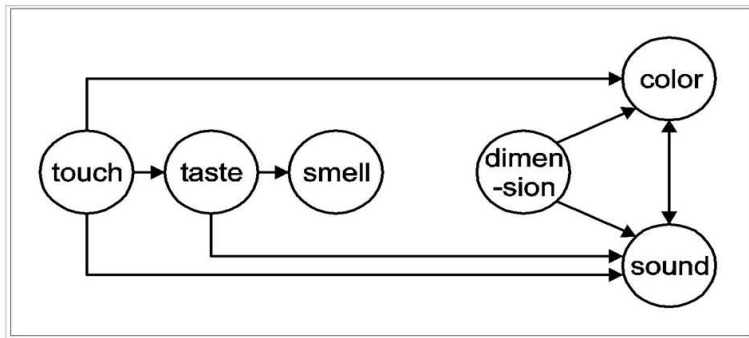
red smell

strongly synaesthetic

directionality thesis: Ullmann 1967



directionality thesis: Williams 1976



examples

süßer Geruch (*sweet smell*)

riechende Süße (*smelling
sweetness*)

stille Hitze (*silent heat*)

heiße Stille (*hot silence*)

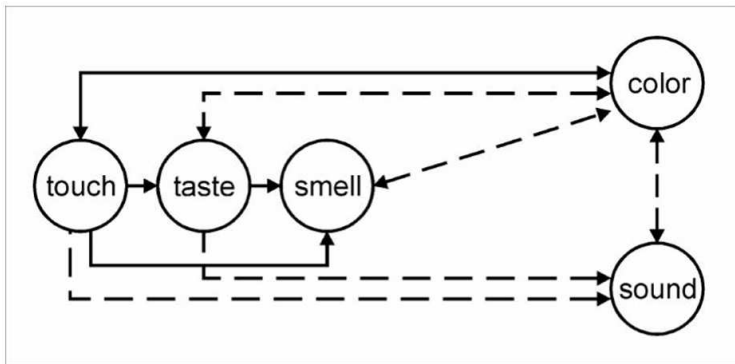
kalter Geruch (*cold smell*)

riechende Kälte (*smelling
coldness*)

roter Klang (*red sound*)

klingende Röte (*sounding
redness*)

directionality thesis: Werning, Fleischhauer, Beseoglu 2006



problems

gelbe Ruhe
(‘yellow silence’)

↓ ↓
colour sound

‘not accessible’

blasser Klang
(‘pale sound’)

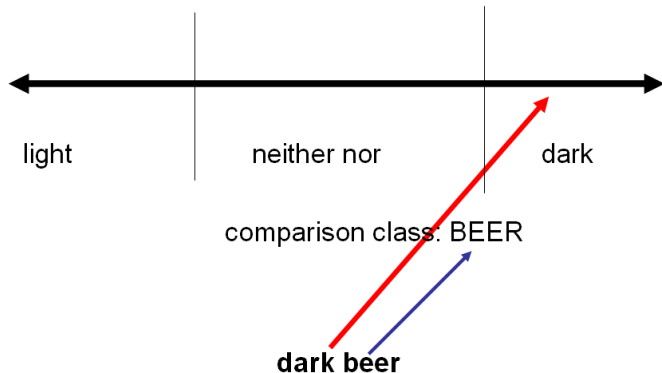
↓ ↓
colour sound

‘accessible for 93%
of the participants’

brightness scale



brightness scale



contextually defined norms



examined concepts

	<u>Source Domain</u>	<u>Target Domain</u>
<u>Scalar Concepts</u>	matt (' <i>dull</i> ') glänzend (' <i>glossy</i> ') blass (' <i>pale</i> ') dunkel (' <i>dark</i> ') hell (' <i>bright</i> ') finster (' <i>gloomy</i> ')	Geschmack (' <i>taste</i> ') Geruch (' <i>smell</i> ') Geräusch (' <i>sound</i> ')
<u>Quality Concepts</u>	braun (' <i>brown</i> ') weiß (' <i>white</i> ') grau (' <i>grey</i> ') rot (' <i>red</i> ') schwarz (' <i>black</i> ') blau (' <i>blue</i> ')	

quality concepts as source domain concepts in German

	vision → smell	vision → taste	vision → sound
N (cases)	209	212	216
mean value (0)	-0,59**	-0,47**	-0,69**

*significant; ** highly significant

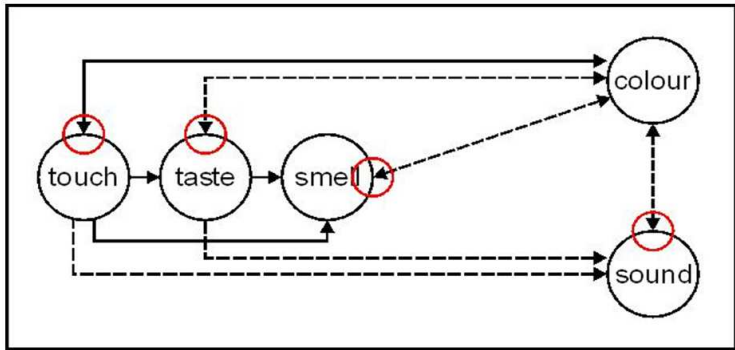
scalar concepts as source domain concepts in German

	scalar → smell	scalar → taste	scalar → sound
N (cases)	214	211	208
mean value (0)	-0,07	0,15	0,43

*significant; ** highly significant

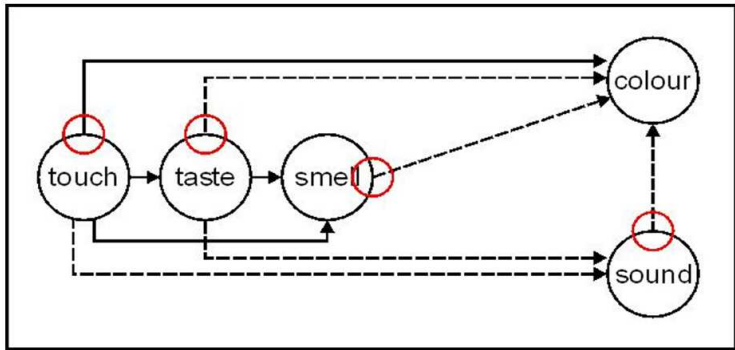
revised directionality hierarchy

Revised directionality hierarchy



revised directionality hierarchy

Revised directionality hierarchy

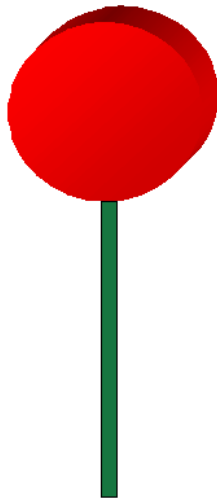
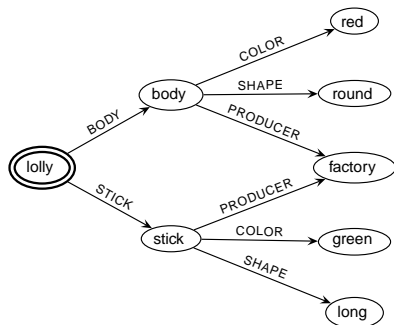


frames

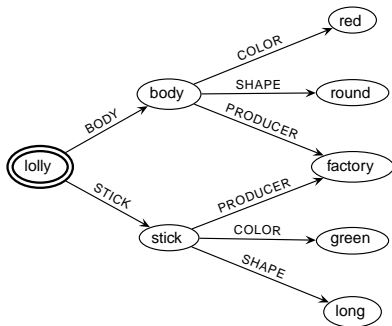
Barsalou (1992) *Frames, Concepts, and Conceptual Fields*

- Frames provide the fundamental representation of knowledge in human cognition.
- At their core, frames contain **attribute-value sets**.

frame definition



frame definition

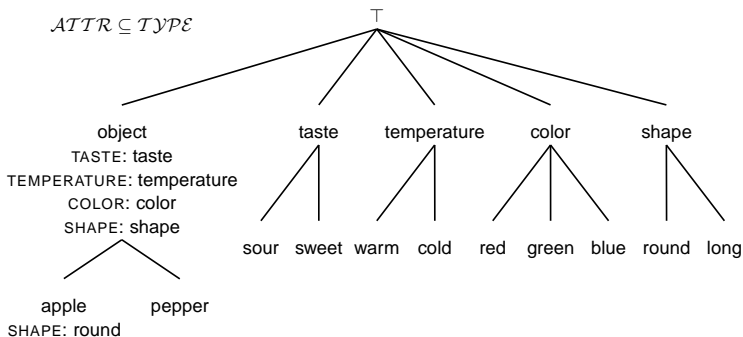


Definition

Frames are connected, directed graphs with

- one central node (here: double-encircled)
- nodes labeled with types
- arcs labeled with attributes
- no node with two equally labeled outgoing arcs

type signature and minimal upper attributes

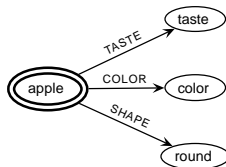


Definition

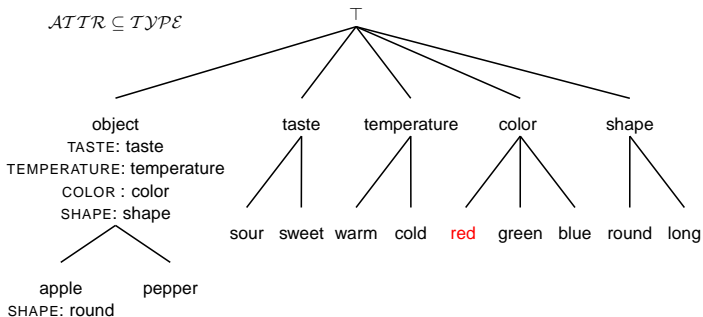
A **minimal upper attribute** of a type is a minimal element of the set of upper attributes of the type. An upper attribute of a type is an attribute which is a supertype of the type.

non-metaphorical expression

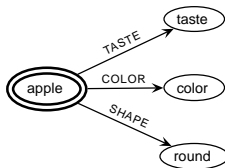
red apple



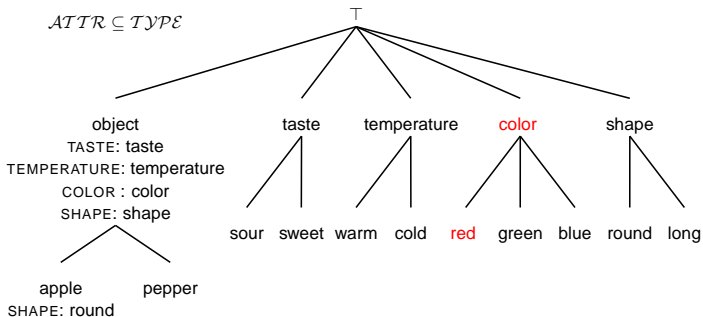
non-metaphorical expression



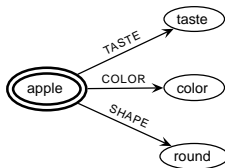
red apple



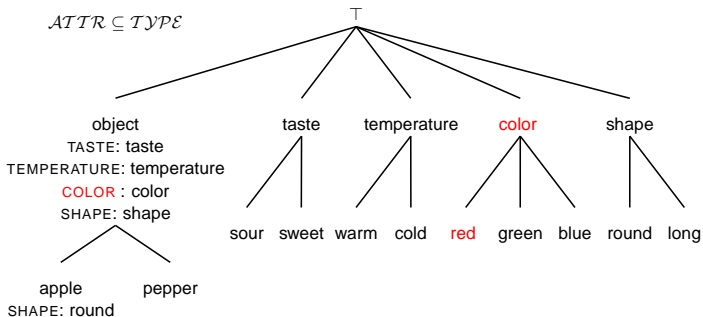
non-metaphorical expression



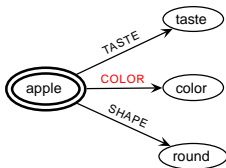
red apple



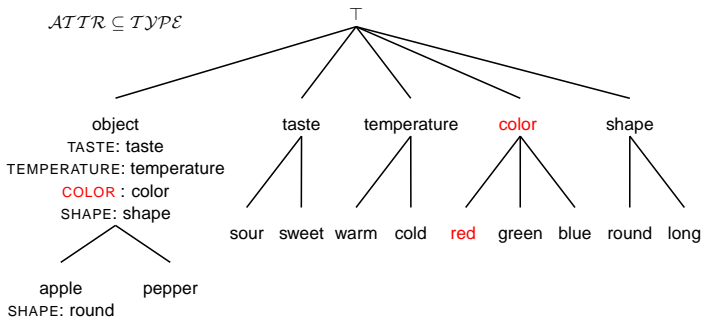
non-metaphorical expression



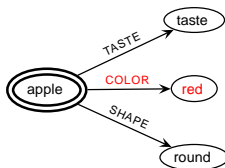
red apple



non-metaphorical expression

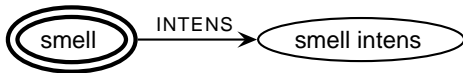


red apple

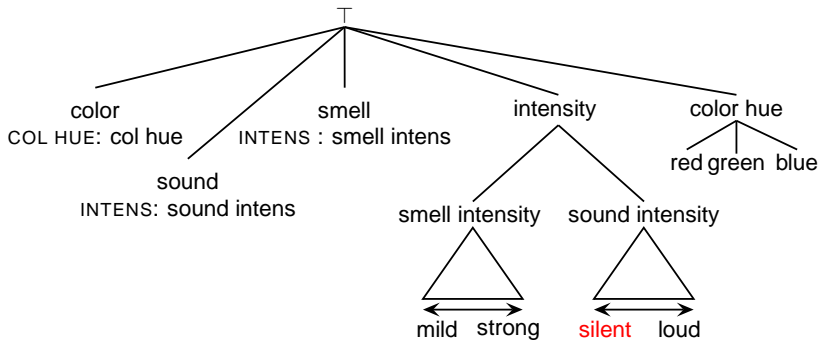


synaesthetic metaphor with scalar concept

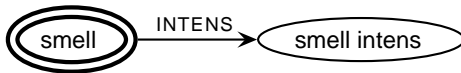
silent smell



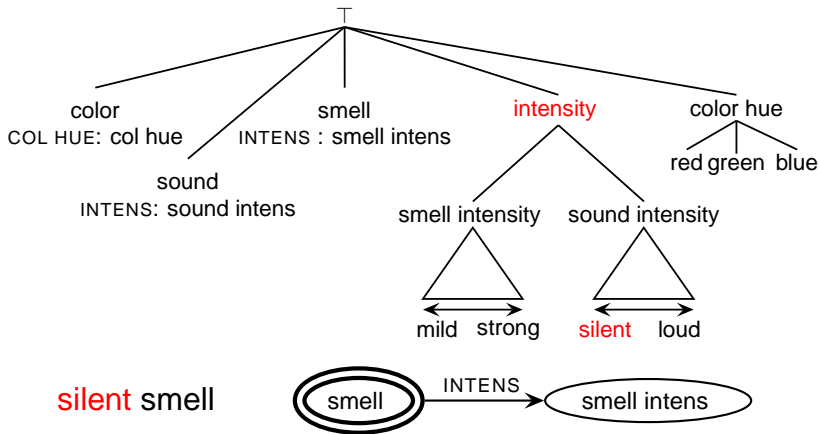
synaesthetic metaphor with scalar concept



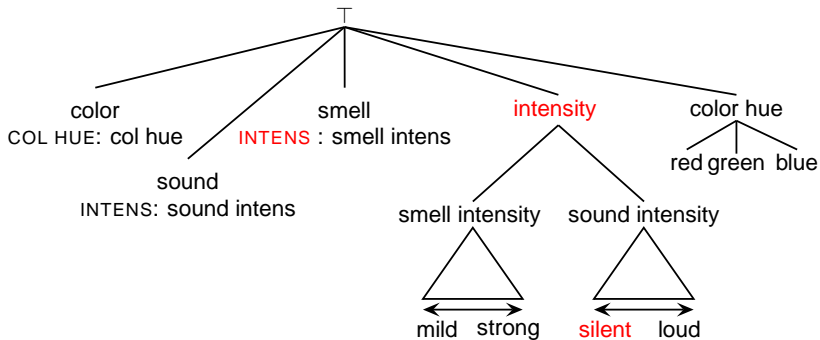
silent smell



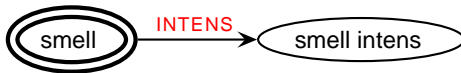
synaesthetic metaphor with scalar concept



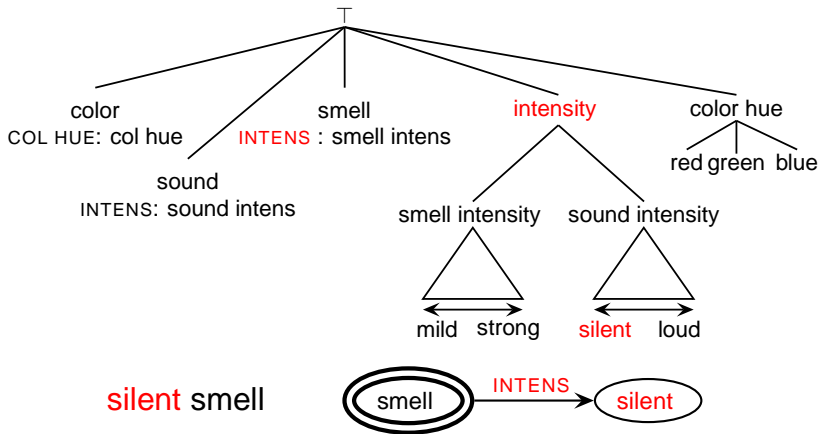
synaesthetic metaphor with scalar concept



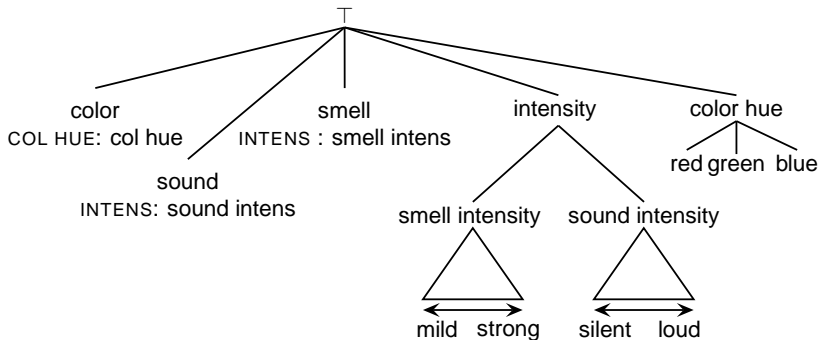
silent smell



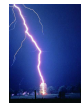
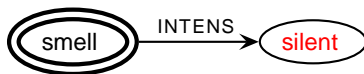
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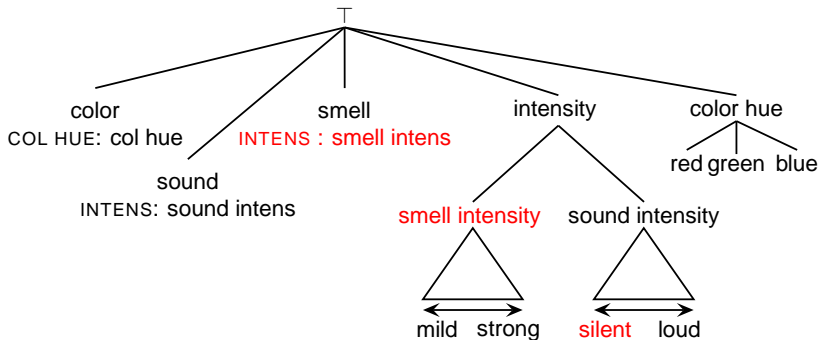
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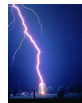
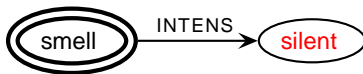
silent smell



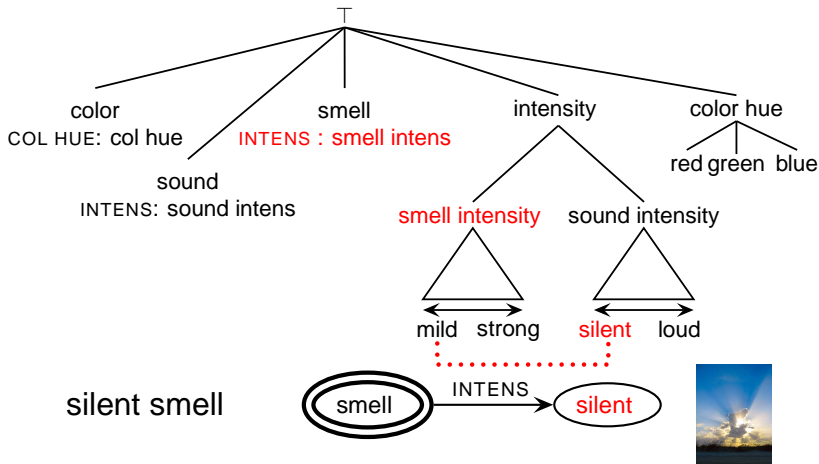
synaesthetic metaphor with scalar concept



silent smell



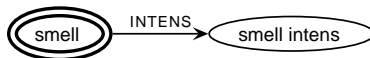
synaesthetic metaphor with scalar concept



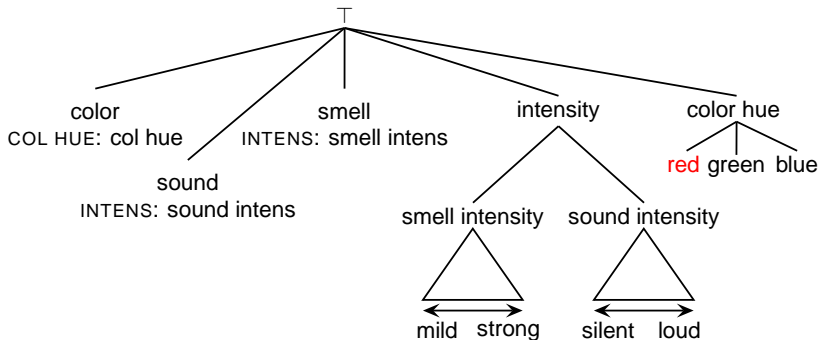
+ adequate attribute, – inappropriate value ⇒ interpretation succeeds!

synaesthetic metaphor with quality concept

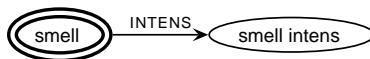
red smell



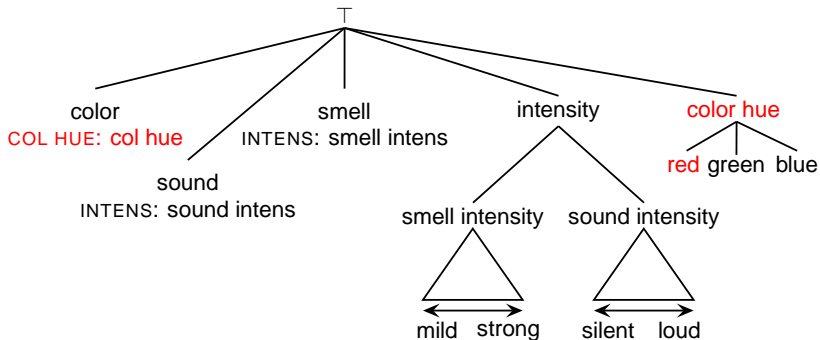
synaesthetic metaphor with quality concept



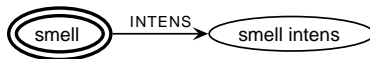
red smell



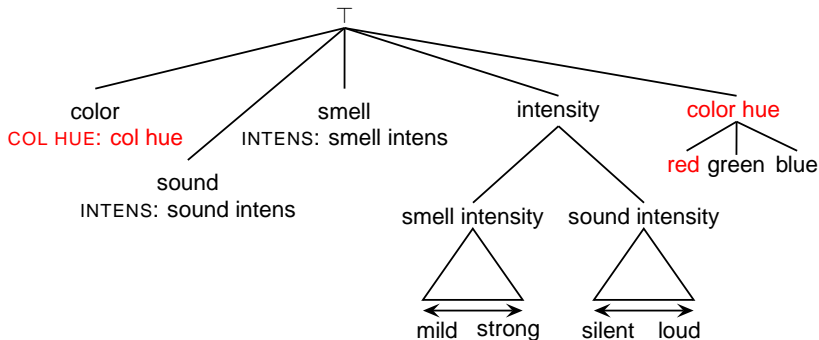
synaesthetic metaphor with quality concept



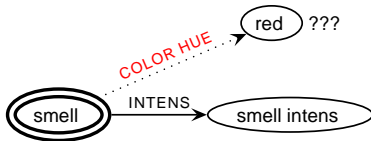
red smell



synaesthetic metaphor with quality concept



red smell



– adequate attribute ⇒ interpretation fails!

Conclusions:

- The processing of synaesthetic metaphors can be explained in terms of frames.
- In principal, the same strategies are applied for processing metaphorical and non-metaphorical expressions.
- An expression is mainly inaccessible if the frame of the compound expression contains inadequate attributes.
- A reinterpretation of inappropriate values is possible.
- Thus, synaesthetic metaphors with scalar concepts are more likely to be accessed than those with quality concepts. These findings cannot be explained in terms of directionality.

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