Common assumption: event structure templates represent the grammatically relevant meaning components of verbs (Rappaport Hovav & Levin 1998 among others).

We present a frame analysis of two phenomena which require a decomposition beyond event templates.
Event decomposition

State: \([x\langle\text{PRED}\rangle]\)
Activity: \([x \ \text{ACT}\langle\text{PRED}\rangle]\)
Achievement: \(\text{BECOME}[x\langle\text{PRED}\rangle]\)
Accomplishment: \([x \ \text{CAUSE} \ [\text{BECOME}[y\langle\text{PRED}\rangle]]]\)

(Rappaport Hovav & Levin 1998: 108, based on Dowty 1979)
Verbs of emission

Verbs of **smell** emission: e.g. *stink, smell*

Verbs of **light** emission: e.g. *shine, glitter*

Verbs of **sound** emission: e.g. *drone, bark, giggle*

Verbs of **substance** emission: e.g. *bleed, fester*
Arguments realization

The $\text{dog}_{\text{emitter}}$ stinks / is barking / is bleeding.

The $\text{sun}_{\text{emitter}}$ is shining.

The $\text{emittee}$ is an implicit argument of the verb. (Goldberg 2005: emittee = "incorporated theme".)

The dog is emitting blood / a barking sound.
Event structure

a. *bluten* 'bleed': [x ACT_{bleed}]

b. *dröhnen* 'drone': [x ACT_{drone}]

• Both verbs are represented by the same structure since they are activity predicates.

• The implicit theme argument is not part of the structural representation.
Verb gradation

a. *Der Hund bellt viel.*
   'The dog barks a lot.'
   [extent gradation]

b. *Der Hund mag Knochen sehr.*
   'The dog likes bones a lot.'
   [degree gradation]
Gradation of emission verbs

a. *Der Motor hat sehr gedröhnt.*
   'The engine droned a lot.'

b. *Der Motor war sehr am Dröhnen.*
   'The engine was droning a lot.'

Sound intensity scale, event-independent degree gradation
Gradation of emission verbs

a. *Die Wunde hat sehr geblutet.*
   'The wound bled a lot.'

b. *Die Wunde war sehr am Bluten.*
   'The wound was bleeding a lot.'

Quantity scale,
event-dependent degree gradation
Event-dependent degree gradation

The more the event progresses, the higher the degree on the quantity scale.

→ The constraint above holds for verbs of substance emission but not for verbs of sound emission.

→ "traditional" event structural representations cannot capture this fact and therefore do not provide a principled explanation for the contrast between gradation of verbs of substance and sound emission.
• Conceptual knowledge is captured in frame representations.
• Frame representations provide an explicit, variable-free, and cognitively plausible format.
• Frames are defined as recursive attribute-value structures (Barsalou 1992).
• The attributes correspond to mathematical functions.
Frames for nominal concepts
(Petersen 2007, Petersen & Osswald 2014)

frame representation of sortal concept 'cherry'
Frames for nominal concepts

(Petersen 2007, Petersen & Osswald 2014)

frame representation of sortal concept 'cherry'
Frames for nominal concepts
(Petersen 2007, Petersen & Osswald 2014)

frame representation of sortal concept 'cherry'
Naumann (2013): static event frames (SEFs) represent global properties of the overall event/static dimensions.

Frame analysis of \textit{run}
Event structure of *run*
(cf. Gamerschlag, Geuder & Petersen 2014)
Event analysis of *run*: condensed frame

![Diagram](image)

- **run**
- **Actor**
- **Position**
- **Path**
- **Trace**
Frame of *dröhn*en 'drone'

*Das Motorrad dröhnte.*

'The motorbike droned.'
Frame of sehr dröhnen 'drone a lot'

a. *Das Motorrad war sehr am Dröhnen.*
   'The motorbike was droning a lot.'
b. *Das Motorrad hat sehr gedröhnt.*
   'The motorbike droned a lot.'
Frame of *bluten* 'bleed'

*Der Hund hat geblutet.*

'The dog bled.'
Condensed frame of sehr bluten 'bleed a lot'
Frame of **sehr geblutet** (perfective reading; total quantity)

*Der Hund hat sehr geblutet.*

'The dog bled a lot.'

\[\text{bleed} \quad \text{EMITTER} \quad \text{EMITTEE} \]

\[\text{dog} \quad \#x \quad \#y \quad \text{blood} \quad t_b \quad t_f \quad \text{QUANTITY} \quad \#x \ll \#y\]
Der Hund war sehr am Bluten.
'The dog was bleeding a lot.'
Verbs of sound emission: extended use as verbs of motion

a. *Das Auto quietschte um die Ecke.*
   'The car screeched around the corner.'

b. *Der Zug rumpelte vorbei.*
   'The train rattled past.'

c. *Das Motorrad jaulte über die Kreuzung.*
   'The motorbike yowled over the crossing.'

(examples adapted from Kaufmann 1995b:91)
Verbs of sound emission: extended use as verbs of motion

a. *Das Motorrad jaulte über die Kreuzung.*
   'The motorbike yowled over the crossing.'

b. *§Der Welpe jaulte unter das Bett.*
   'The puppy yowled under the bed.' (lit.trans.)
   (adapted from Kaufmann 1995b:93)
"The reason that *jaulen* can be interpreted as some kind of motion of vehicles is due to the fact that sound emission can be understood as a by-product of this particular kind of motion."

(translated from Kaufmann 1995a:208, cf. also Maienborn 1992)
"Some members of this class are found with directional phrases; generally, this option is only allowed if the sound is a necessary concomitant of the motion of some entity."

(Levin 1993:236, cf. also Levin & Rappaport Hovav 1990)

"Such verbs can be used freely when the sound is a result of the motion and occurs simultaneously with the motion."

(Goldberg 1995:62, cf. also Jackendoff & Goldberg 2006)
Analysis of extended use: Constructional approach (Goldberg & Jackendoff 2004)

**Sound emission path resultative**

Syntax: \( NP_1 \ V \ PP_2 \)

Semantics: \( X_1 \ GO \ Path_2 \)

RESULT: \([VERBAL \ SUBEVENT: X_1 \ EMIT \ SOUND]\)

verbal subevent = subject performing the action expressed by the verb

constructional subevent = subject moving along the path expressed by the PP
Analysis of extended use: Decompositional approach (Kaufmann 1995a/b)

Motion verb extension:

a. general template: \texttt{CORE\_PREDICATE(x) \& MOVE(x) \& P(x)}

b. jaulen/yowl (dir. use): \texttt{YOWL(x) \& MOVE(x) \& P(x)}

c. yowl over the crossing:
   \texttt{YOWL(x) \& MOVE(x) \& INTERSECT(PATH(x), UPPER\_REGION(crossing))}

General constraint on Semantic Form:
"In a decomposed structure, the predicates that are embedded higher in Semantic Form activate the properties of their arguments. Any more deeply embedded predicate must specify these properties." (Kaufmann 1995b:93)
Frames of *jaulen* 'yowl' and move_{+dir}

*jaulen* 'yowl'

(move_{+dir} (Gamerschlag, Geuder & Petersen 2014))
Attribute activation in object frame
Frame of *jaulen 'yowl' + move*<sub>dir</sub>
Fail of attribute activation in object frame
Hypothesis on verb frame extension (tentative)

In an extended verb frame, attributes/values of the base verb frame activate attributes in the frame of the argument nodes.

Any attributes/values added to the base verb frame must specify these attributes.

(frame version of Kaufmann's constraint)
An adequate analysis of verb gradation and directed motion uses of verbs of emission requires explicit reference to the monotonic increase of the emitted substance and the relation between sound emission and motion.
• Frame representations show a flexible degree of complexity (zooming in and out by expanding/not expanding nodes) which allows for easy access to these details of verb and noun meaning.

• Frame representations permit capturing object knowledge and verb meaning in a single representation format.

→ no extra-representational format
ab hier Material
alternative frame:
Frame of *jaulen* 'yowl' + move_{+\text{dir}}

*motorbike* + *jaulen* 'yowl' (dir.)
Verbs of sound emission: extended use as verbs of motion

a. Der *Welpe jaulte.*
   the puppy yowled
   'The puppy yowled.'

b. § *Das Motorrad jaulte.*
   the motorbike yowled
   'The motorbike yowled.'

(adapted from Kaufmann 1995b:91)
Morphosyntactic context (intensifier, directional PP) activates frame attributes (if required for the interpretation of the morphosyntactic construction).
Vielleicht hier noch etwas mehr zur Analyse (Ereignis und Akkumulation