Abstracts

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Acting intentionally in Frames
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Introduction. The analyses of agent-related adverbial classes (e.g. mental-attitude) frequently mention the necessity of intentional agents, but rarely discuss what it means for an agent to be acting intentionally (cf. Wyner 1998, a.o.). We propose a frame analysis which adopts a new attribute specifying an action-plan. Our notion of an action-plan is inspired by Goldman’s (1970) theory of human action. In this way we capture the impact of modifiers, like German absichtlich (‘intentionally’), on the event’s intentional component.

action-plans. Goldman (1970) assumes ‘action-plans’ to be at the base of an analysis of intentional action. His starting point is the observation that agents can actually do several things in one when acting: for example, giving a signal by waving one’s hand (Goldman 1970: 50). The act-token of giving a signal is generated by the act-token of waving one’s hand. These act-tokens are connected in terms of a ‘by’ or ‘in’ relation, which is an asymmetric, irreflexive, and transitive relation, called ‘level-generation’. The lower-level actions are the methods of realizing the higher-level ones. The relation captures that an act under circumstances generates another act by the same agent. Goldman considers action-plans as the same kind of construct: hypothetical acts of an agent connected by level-generation. If an act of an agent is intentional, then it is realized as conceived in her action-plan, where the latter consists of the agent’s action-want and a set of beliefs concerning the methods of realization of that want (Goldman 1970: 57-59).

Consider the example: John turns on the light by flipping the switch (cf. Goldman 1970: 23). If John is to turn on the light intentionally, then he has to want to turn it on. This action-want of John, i.e. the want to do a certain act, is seen as the triggering component of his action-plan (see Goldman 1970: 49ff). John can further have different options for turning the light on (use the switch, use a remote control, etc.), but as he decides to use the switch, he has to believe that this is a method likely to realize his want in view of the given circumstances. If John succeeds in realizing the action as conceived in his action-plan, then the action is intentional. We think that such correspondences between action-plans and real actions are at the core of the meaning contribution of most agent-related modifiers.

Action-plans in Frames. We formalize Goldman’s action-plans in frames, where a frame is a recursive attribute value structure (Petersen 2007, Löbner 2017), using the notion of ‘cascades’ proposed by Löbner (ms.) as a more general term for Goldman’s ‘act-trees’. Cascades are applied for the analysis of the lexical meanings of action verbs; according to Löbner, the meanings of most action verbs require a cascade representation.

Following Löbner (ms.) cascades are second-order frame structures. The single level act-types are represented by first-order frames; in the cascade, they are related by the "genuine frame-to-frame relation" of "c-constitution", i.e. constitution under the given circumstances. If an act of type 1 level-generates an act of type 2, this results in the c-constitution relation between the frames for the two act-types.
We propose to analyze action-plans as cascades of hypothetical acts of an agent. Whenever an agent is acting intentionally, she has an action-want causing the real action as part of an action-plan which matches her acts. This match is modeled by a second-order frame comparator (cf. Löbner 2017), which applies to the hypothetical and the actual acts of the agent.

**Modifiers signaling intentionality.** We propose that the modifier *absichtlich* states that the action of the agent matches an element in her action-plan. This assumption is in accordance with Buscher’s (2016) treatment of the modifier as fixing the interpretation of predicates which could be interpreted as either intentional or unintentional to an intentional one, e.g. *das Licht anlassen* (‘leave the light on’).

(1) Ich habe das Licht absichtlich angemacht, damit die Katzen keine Angst haben.

‘I intentionally turned the light on, so that the cats do not get afraid.’

The connector *damit* supplies the content of the agent’s intention in (1), i.e. the target of her action-want (I want to prevent that my cats get afraid). The want is achieved by leaving the light on, which can be an intentional or an unintentional action. The modifier *absichtlich* fixes the interpretation of *das Licht anlassen* and states that the agent acted with respect to her action-plan which consists of her want - to prevent that the cats get scared, and her beliefs that leaving the light on will prevent it.

A generalized model in frames which captures our example in (1) is illustrated in figure 1 below:

![Figure 1: Modelling absichtlich](image)

Considering again the *turns on the light* example from Goldman the action-plan as well as the realization of the action are going to contain the (hypothetical) acts *flips the switch*, for example, as Act₁. These acts then generate the *turns on the light* acts, Act₂.
Act3 in our model represents the target of the action-want of the agent – achieving that the cats are not afraid.

The PLAN attribute in the frame together with the comparators connecting the respective action-plan and execution levels captures that due to absichtlich the event is interpreted as intentional.

The model can also capture the function of other modifiers demanding the participation of an intentional agent. An example is the adverbial sorgfältig (‘carefully’) which poses restrictions on the content of the agent’s want and the suitability of the available methods. The modifier relates this intention to the method suitable for the realization. The agent chooses which method is suitable for the realization of his intention with respect to his abilities as well as the circumstances and conventions/standards holding at the moment of realization, captured by the c-constitution relation.

Outlook. We assume that the proposed analysis can be used to capture the meaning contribution not only of absichtlich but also of other mental-attitude adverbials (e.g. unabsichtlich (‘unintentionally’) indicates a mismatch between the action-plan and the performance), as well as of other adverbial classes as suggested in Schäfer (2013). A good candidate is the class of agent-oriented manner adverbials, like sorgfältig (‘carefully’).

References
Löbner, S. manuscript. Cascades. Goldman’s level-generation, multilevel categorization of action, and verb semantics.