

On dancers and ballerinas: experimental evidence for a meaning-based perspective on nominal event arguments

We investigate which part of world knowledge is linguistically represented by studying adjective-noun constructions. We argue that deverbal nouns (e.g. *dancer*) as well as certain nondeverbal nouns (e.g. *ballerina*) have an event argument as part of their semantics, since they are linked to typical activities. In this, they contrast with personal stative nouns (e.g. *person*). We present evidence from a maze task experiment supporting this meaning-based perspective.

1. Theoretical Background Larson (1998) assumes that certain individual denoting nouns have an event argument. While this may capture the ambiguity of adjective-noun constructions like *beautiful dancer*, it raises the question which nouns have an event argument. An event argument is mostly assumed to be present in deverbal nouns only (Larson 1998, Winter&Zwarts 2013, Alexeyenko 2015, Maienborn 2020). Rapp (2015), however, assumes that deverbal as well as nondeverbal nouns can semantically be associated with events, together making up the class of eventive nouns. From a meaning-based perspective, this seems appropriate. In noun pairs like *dancer – ballerina* and *piano player – pianist*, it seems hard to justify why only the deverbal noun should have an event argument. Both types of nouns can lead to a default reading when combining with adjectives like *skillful* and *talented*, which we assume are underspecified regarding what the respective skill/talent is. *Skillful dancer* and *talented ballerina* can be paraphrased as ‘skillful as a dancer’ and ‘talented as a ballerina’, indicating that these nouns can resolve the adjective’s underspecification. However, not all nondeverbal nouns are capable of that: *skillful woman* and *gifted boy* cannot be paraphrased as ‘skillful as a woman’ and ‘gifted as a boy’. Given this observation, we take the interaction of the noun and the adjective to serve as a “window” into the noun meaning.

2. Analysis We propose that the adjective’s underspecification can be captured by a context-dependent parameter R (type $\langle v, et \rangle$): a relation between events and individuals, i.e. an activity the individual performs in the event) in the adjectival semantics. Since they are gradable, these adjectives also have a context-dependent comparison class C as a parameter.

$$(1) \llskillfull\ = \lambda x.[skillful_w(R)(C)(x)]$$

A pragmatic principle (Maienborn 2020) ensures that information provided by the modified noun is generally given preference when determining the value of the adjectival parameter. However, to be able to do so, the noun must allow the derivation of a typical activity. We propose that the ability of a noun to fulfill this requirement is reflected in its semantics: since they may provide a default for the adjectival parameter, *dancer* and *ballerina* have an event argument. The AP and the NP (both type $\langle et \rangle$ after the nominal event argument is bound by a generic quantifier) intersect. In (5), R can be identified with the noun at the pragmatic level, since in the lexicon the noun is of type $\langle v, et \rangle$. This is not possible in (6), which is not even well-formed because of the type mismatch with the noun: since there is no default interpretation when they combine with the adjective, we assume nouns like *woman* and *person* do not have an event argument (i.e. type $\langle et \rangle$ in the lexicon), and R must thus be found in the context in these cases.

$$(2) \lldancer\ = \lambda e.\lambda x.[dancer_w(e)(x)]$$

$$(3) \llballerinall\ = \lambda e.\lambda x.[ballerina_w(e)(x)]$$

$$(4) \llwoman\ = \lambda x.[woman_w(x)]$$

$$(5) \llskillful\ ballerinal\ = \lambda x.[skillful_w(R)(C)(x) \wedge \text{GENe } ballerina_w(e)(x) \wedge R = ballerina]$$

$$(6) \llskillful\ woman\ \neq \lambda x.[skillful_w(R)(C)(x) \wedge woman_w(x) \wedge R = woman]$$

3. Experiment We tested the predictions of our analysis given above in a maze task with a 3x1 design with the factor noun class, testing deverbal eventives (e.g. *dancer*), nondeverbal eventives (e.g. *ballerina*), and personal stative nouns (e.g. *person*). (7) shows a sample item for all three conditions.

(7) *Riley is a skillful dancer/ballerina/person. She is really good at it before large crowds.*

The experiment ($N_{\text{subject}} = 70$, $N_{\text{item}} = 24$, $N_{\text{filler}} = 48$) was conducted via PCIBex Farm (Zehr&Schwarz 2018). We predict that the speed with which the skill that *it* refers to is retrieved

is dependent on the noun class introduced in the first sentence. Our meaning-based account predicts a slowdown in RTs when *it* is selected in the maze with reference to a personal stative, but no slowdown for nondeverbal eventives compared to deverbal eventives. Accounts based on deverbality (i.e. the morphological make-up of the noun) predict a slowdown for personal statives and nondeverbal eventives compared to deverbal eventives.

4. Results Word-by-word RTs are shown in Figure 1. We fit a Bayesian linear mixed effects model to log-transformed RTs. Helmert-coded contrasts showed no difference between deverbal and nondeverbal eventives (95% CrI = [-0.05, 0.07]), whereas their grand mean differed from the personal statives (95% CrI = [0.03, 0.15]). This is captured in (5) and (6), where the presence or absence of an event argument makes a default interpretation of the adjective-noun construction available or unavailable. This is reflected in our results in a notable slowdown in RTs for personal statives compared to (the grand mean of) deverbal and nondeverbal eventives.

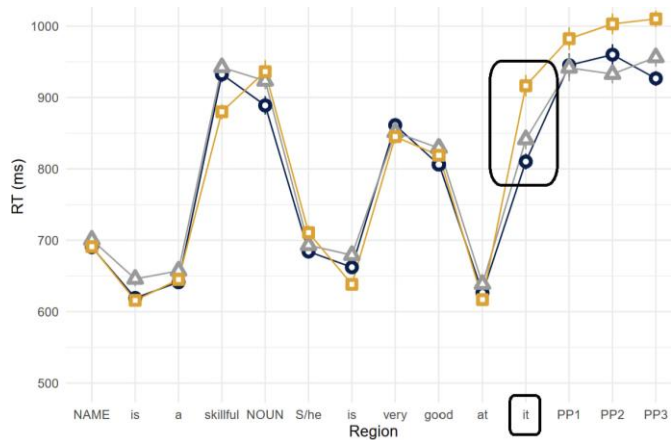


Fig.1: Word-by-word RTs for all 3 conditions (□: personal stative, △: nondeverbal eventive, ○: deverbal eventive)

5. Discussion Our results suggest that not only deverbal, but also certain nondeverbal nouns are linked to typical activities, which we linguistically represent in the form of an event argument. We propose that a noun allows to derive a typical activity (and hence have an event argument) if the activity corresponds to what psychology views as a so-called *k*-property of the respective concept, i.e. “properties of a token that are determined by the type of thing it is” (Prasada&Dillingham 2006:76). *k*-properties contrast with *t*-properties, which are merely statistically associated with a concept. This distinction captures how humans categorize entities. We assume ‘dancing’ is a *k*-property connected to the concept behind *dancer*, since there must be some dancing in order for someone to be rightfully called *dancer*. Likewise, ‘dancing’ is a *k*-property connected with the concept behind *ballerina*, since there must be some (ballet-type) dancing in order for someone to be rightfully called *ballerina*. In contrast, no activity is connected as a *k*-property with the concept behind a noun like *baby*. Even though e.g. most babies cry, this (or any other) activity is not the reason why a baby is called *baby*. We thus assume that no typical activities are connected linguistically with such nouns. In our approach, the presence of an event argument in the noun is not important for the semantic composition with the adjective (boiling down to simple intersection), but for the determination of its comparison property. This approach is in spirit of Maienborn’s (2020) proposal for an intersective analysis, but employs a simpler ontology by only assuming events, and not tropes/roles in addition. Larson’s (1998) question of how far to go with the assumption of nominal event arguments receives an answer grounded in insights from psychology.

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