Looks like you can crown your teddy with a rose garland, but can you paddle the boat with this spoon? The true behaviour of pseudo denominals and the pseudo behaviour of true denominals.

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The current paper aims to test, on the basis of two acceptability judgment tasks answered by 100 native speakers of English, whether the distinction between true and pseudo location, locatum and instrument denominal verbs holds. The results reveal significant effects of the semantic similarity of the PPs to the denominal verb's incorporated nominal. Thus, instead of arguing that only some denominals are root-derived (Kiparsky 1997), we argue these verbs are all derived from nominal roots expressing *n*-like concepts. This would not only explain the fact that they combine with PP objects different from *n*, but also the differences among them: some verbs seem to combine with more PP objects than others (depending on whether one can more readily think of objects similar to the nominal root).

According to Kiparsky (1982, 1997), two types of denominal verbs can be distinguished depending on whether they can take a PP denoting a different 'object' from the one incorporated in the verb: true denominal verbs, and pseudo-denominal verbs. Whereas true instrument-incorporating verbs like *tape* imply the specific use of the incorporated instrument, pseudo-denominal instrumental verbs like *hammer* are more generic, denoting the most typical instrument used for the activity; the verb itself does not require any particular instrument:

(1) a. ♯Lola taped the poster to the wall with pushpins.
    b. He hammered the desk with his shoe.

While this idea has also been embraced by Arad (2003, 2005) for Hebrew, according to Harley & Haugen (2007), no account of this distinction is necessary, as the distinction does not actually exist, and verbs of the *tape*-type do not necessarily entail use of the conflated root (one can *tape with band-aids / mailing labels*). The reason why taping with pushpins is bad would be because the characteristic manner of use of pushpins is quite distinct from that of tape.

Starting from the observation that some of Kiparsky's unacceptable sentences relied on PPs not similar to the object *n*, we ran an acceptability judgment task in order to test whether the similarity of the PP to the incorporated object affects acceptability for native speakers of English. In the test, 100 native speakers of English had to rate the acceptability of 56 sentences (28 test sentences and 28 fillers) on a Likert scale from 1 to 5. The 28 verbs consisted of 12 instrumentals, 8 location and 8 locatum verbs.

There were four types of test sentences based on those of Kiparsky (1997): sentences with true denominals considered unacceptable by Kiparsky, sentences with pseudo-nominals considered acceptable by Kiparsky, modified sentences with true denominals and modified sentences with pseudo-denominals. In the modified sentences, the PPs were modified such that, instead of the instrument/ location/ locatum used by the author, we picked an instrument/ location/ locatum that was semantically of greater or lesser similarity to the incorporated root object. For the denominals considered true by Kiparsky (1997), the PPs were made more semantically similar (2a), while, for those considered pseudo-denominals, the PPs were made less similar (not an object type n) (2b):

(2) a. He crowned her ♯with a hat. / with a rose garland (true)
    b. Tom paddled the canoe with a board / ♯ with a spoon. (pseudo)

The test sentences therefore vary in two ways: they can have PPs that are similar or non-similar to the incorporated object of denominal verb, and they can have pseudo or true denominal verbs (following Kiparsky's classification). This enables us to test the effect of these two factors on acceptability ratings. There were two versions of the test, in which each denominal verb was presented only once, preventing the participants from seeing the same verb in both a similar and non-similar condition. Each version was presented to 50 participants.

We created a linear mixed-effects model to test whether there is an effect of the factors similarity and type of denominal (true or pseudo) on the ratings given by the native speakers, while controlling for verb type (instrument/location/locatum) as a fixed effect and participant and verb as random effects with random slopes for the within-subjects factors. The model's estimate of ratings with similar PP objects is significantly higher than the estimate of ratings with non-similar PP objects (t[2642] = 6.68; p = 3.71^{-07}). We conclude that denominal verbs with PP objects similar to the incorporated object of their denominal are

rated higher than those with non-similar PP objects (estimated difference = 0.98 points; 95% confidence interval 0.68 .. 1.27 points). The estimate of ratings with pseudo-denominals as classified by Kiparsky is significantly higher than the estimate of ratings with true denominals as classified by Kiparsky. (t[2642] = 2.41; p = 0.023). We conclude that pseudo-denominal verbs in Kiparsky's classification are rated higher than true denominals (estimated difference = 0.55 points; 95% confidence interval 0.09 .. 1.01 points). These results confirm the hypothesis that acceptability depends mainly on similarity of the PP object to the incorporated object of the denominal verb. However, the model also shows a small effect of Kiparsky's classification, which poses problems for an account treating both types alike. This effect is smaller than the verb random effect though, which indicates that the difference in ratings is more likely to be due to the semantic compatibility between nominal root and the PPs the verb combines with rather than due to any discrete distinction between categories of denominals.

As far as the distinction between true/ pseudo denominals is concerned, we reject the idea that denominals derive from acategorial roots (Borer 2014) and instead adopt the view they are derived from nominal roots with an *n*-like meaning. Borer (2014) argues that there are no denominal verbs derived from nouns derived from verbs (for instance, **destruction*), and this impossibility shows that incorporation does not apply to nouns/ nominal roots, but rather acategorial roots. However, the existence of verbs such as *to proposition, to champion*, *to disillusion* a.o. provides evidence to the contrary. Moreover, denominal verbs may be argued to be derived from something n-like *(hammer-like, tape-like)*, and this would explain the need for semantic compatibility between the verb and the properties of the *n*-like object in the PP. For instance, pushpins cannot be used as tape because they have other properties (they are metal and rigid, unlike tape, a flexible material); for this reason, pushpins do not represent an object type tape, while band-aids and mailing-labels do. Consequently, two possible solutions arise: (i) denominals are derived from something bigger than the noun. i.e. OBJECT TYPE n, a function returning all objects similar to n (including n itself), or (ii) denominals are derived from roots which are or become nominal. We consider the second option a better account, given that the first is uneconomical, relying on an additional silent noun projection, and nouns have been argued to have meaning, but no reference below the word-level (Acquaviva 2009). Thus, the alleged distinction between true and pseudo is given by the degree of compatibility/ similarity of the PP with the *n*-like nominal root of the denominal.

As expected, the results showed no evidence for a difference in acceptability between location, locatum and instrument verbs. In a full analysis of denominal verbs, however, we treat location and locatum verbs, on the one hand, and instrument verbs, on the other hand, in a different way. Following semantic and syntactic arguments in Rissman (2010, 2011) (semantic: restricted range of heads, semantic obligatoriness, dependence on head for interpretation, syntactic: double *with* diagnostic, adverb placement diagnostic, *do-so* replacement a.o.), we embrace the view that instrument PPs are adjuncts, whereas location and locatum PPs are arguments, and we argue this difference holds at l-syntax as well. This has consequences for the theory of incorporation/ conflation, given that incorporation is a syntactic process governed by syntactic constraints such as the Head Movement Constraint, disallowing head-movement from adjunct position (Harley 2008). Therefore, while location and locatum verbs may derived through lexico-syntactic decomposition and successive conflation of N into P, and then, of <P,N> into V (Hale & Keyser 2002) ($[_{VP} [_{V'} V [_{PP} [_{P'} P [\sqrt{Root}]_n]]]]$), following Harley & Haugen (2007), we assume instruments cannot incorporate in a similar fashion and instrument verb are actually derived through direct conflation of the manner onto the verb ($[_{VP} [_{V'} V [\sqrt{Root}]_n]]$).Thus, we assume the distinction between location & locatum / instrument verbs is structural in nature, unlike the alleged distinction between true and pseudo denominals, which is gradual and semantically and pragmatically motivated.

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