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Phy inside psych

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Abstract

Certain psych constructions may be formed on a regular pattern across languages, that of a psychological predicate or phrase having a physical predicate as a “root” and not a psych one. Those constructions may be words, like some *Ving* and *Vant* adjectives in English and French, and they may be phrasal, like the desiderative construction in Finnish (Pylkkänen 2000a), among others. Here, we mostly study the adjectives, such as *marrant* ‘funny’, *jaw-dropping* and *effing*. They are [[V_{phy}] *ing*]_{psychA} phy-inside-psych constructs which literally mean ‘which causes the physical effect usually triggered by the emotion/sensation that it causes’, and actually mean ‘which causes that emotion/sensation’, a psych meaning. They are exceptional because, contrary to all other *Ving* forms, they do not mean ‘which Vs’. They mean ‘which causes (one) to V’. In this unexpected meaning, these forms introduce their own cause participant, which will lead us to investigate the syntax of Object Experiencer morphological and syntactic constructions.

Key words: Object Experiencer constructions in syntax and morphology

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1. Introduction¹

This article aims to show that certain psych constructions may be formed on a regular pattern across languages, that of a psychological predicate or phrase having a physical predicate as a “root” and not a psych one. Those constructions may be words, like some *Ving* and *Vant* adjectives in English and French, studied in detail here, and they may be phrasal, like the desiderative construction in Finnish (Pylkkänen 2000a), among others. Note that the latter constructions will be mentioned for their relevance to the discussion, but they will not be studied in depth here.

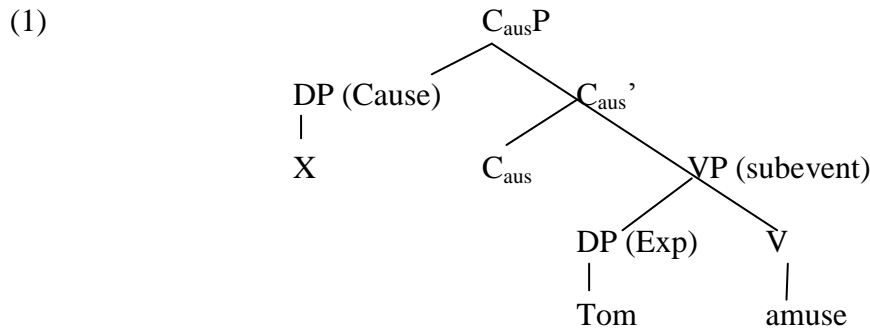
Most productive *Ving* and *Vant* adjectives are formed on Object Experiencer Verbs (henceforth ObjExpVs), like *amusing* (Brekke 1988), and they mean ‘which Vs’. ObjExpVs are verbs like *amuse* or *annoy*, causative in meaning, with the Experiencer expressed as a complement. They differ from non causative verbs like *love*, which express their Experiencer in subject position. With *amusing*-type adjectives, the nominal modified by the adjective regularly corresponds to the subject of the verb: *amusing* means ‘which amuses one’. However, unexpectedly, certain *Ving* and *Vant* adjectives, like *jaw-dropping* and *effing* adjectives, do not qualify the subject of the V and the V is not an ObjExpV, though they have the meanings of ObjExp adjectives. What happens is that such [[V_{phy}] *ing*]_{psychA} phy-inside-psych constructs introduce their own cause participant and they regularly have the meaning, about a certain thing, ‘which causes the physical effect usually triggered by the emotion/sensation which that thing causes’. Such exceptional adjectives can easily be detected because they do not paraphrase as ‘which Vs’, contrary to ordinary *Ving* adjectives, but as ‘which causes x to V’: *jaw-dropping* does not mean ‘that drops one’s jaw’, but ‘that causes one’s jaw to drop’. We will see that, because the subject is in the syntactic context of a psych construct, the meaning ‘that causes one’s jaw to drop’ is associated with that of a psych Cause and not a physical Cause, a reading obtained by having the “root” verb name the physical effect that characteristically accompanies the emotion. Hence, ‘that causes one’s jaw to drop’ is synonymous with ‘surprising’, not ‘heavy’ or whatever physical quality a blow, a machine, a drug, etc., can have which enables it to cause one’s jaw to drop.

Moreover, the reader should not confuse the class under study with that of verbs or VPS which have already acquired a psych meaning, like *touch*, *move*, *break one’s heart*, etc. These are pure psych verbs and they form regular *Ving* adjectives, like *touching*, *moving*, *heart-breaking*, etc., which paraphrase as ‘which Vs’ (‘which touches/moves one’, ‘which breaks one’s heart’, etc.). See Bouchard 1995. Because they are regular, they do not concern us here, though it is interesting to wonder why some, like *touch*, *crush*, etc., may turn into

¹ Lots of thanks to Rea Peltola for her help on Finnish, to the members of the CRISCO at Caen University, and to anonymous reviewers for their questions.

psych ones, while others, like *pinch* or *scratch*, may not, another subject than the one broached here.

In order to follow the empirical argumentation of the first part of the article, I will assume that OpjExpVs enter the following schematic representation and I will talk of the external argument as the Cause, the caused eventuality as the subevent, and the embedded subject as the Experiencer. Basically, *X amused Tom* has the following initial structure, before the root internally merges with the higher C_{aus} element, with C_{aus} standing for some causative morpheme:



The claim of the article is that we can find a phy V instead of the psych root (*amuse* here) in the subevent.

Let us start with highlighting the particular properties of the relevant *Vant* and *Ving* adjectives, in French then English.

2. Lexical phy-inside-psych constructions: *Vant* and *Ving*

Here are the most usual French ObjExpV*ant* adjectives which do not name a quality of the subjects of the verb roots, and thus do not paraphrase as ‘which Vs’. They paraphrase as ‘which makes one V’ with a psychological meaning, namely, a meaning like ‘attractive’, ‘funny’, ‘sad’, ‘depressing’, etc. I will thus give their literal, physical, translation in parentheses, and their real meaning between simple quotation marks. Below that, I mention the base verb with its meaning. The process is productive (cf. recent *kiffant*):

- (2) a. *bandante* (lit. ‘that makes one have a hard-on’) ‘sexy, attractive’
(*bander* ‘have a hard-on’)

bidonnant (lit. ‘that makes one hold one’s belly’) ‘extremely funny’
(*se bidonner* ‘laugh’, from *bidon* ‘can’ metaphor for ‘belly’ and metonymy ‘belly’ for ‘hold one’s belly’)

chiant (lit. ‘that makes one shit’) ‘annoying, boring’
(*chier* ‘shit’)

craquant (lit. ‘that makes one crack’) ‘irresistible (person)’
(*craquer* ‘crack’)

flashant (lit. ‘that makes one flash’) ‘very appealing’
(*flasher* ‘feel attraction for’)

flippant (lit. 'that makes one freak out') 'creepy, spooky'
(*flipper* 'freak out', borrowing from the Am. English metaphor *to flip one's lid* 'do something crazy')

gerbant (lit. 'that makes one puke') 'revolting'
(*gerber* 'puke')

kiffant (lit. 'that gives one pleasure') 'very pleasant, desirable'
(*kiffer* 'feel pleasure, desire')

marrant (lit. 'that makes one laugh') 'funny'
(*se marrer* 'laugh')

planant (lit. 'that makes one hover') 'that makes one feel as if they were gliding'
(*planer* 'glide, hover')

poilant (lit. 'that makes one laugh') 'very funny'
(*se poiler* 'laugh') (*s'arracher le poil* 'pluck one's hair' (*poil* 'hair'))²

rageant (lit. 'that makes one rage') 'infuriating'
(*rager* 'be in a rage')

râlant (lit. 'that makes one moan (against)') 'infuriating, bugging'
(*râler* 'moan')

roulant: 19th C (lit. 'that makes one roll') 'very funny'
(*rouler* 'roll')

suant (lit. 'that makes one sweat') 'very annoying'
(*suer* 'sweat')

tordant (lit. 'that makes one double up') 'very funny'
(*se tordre (de rire)*) lit. 'bend, twist (with laughter)'

trippant (lit. 'that makes one go on a bad trip') 'spooky'
(*tripper* 'go on a, usually bad, trip')

- b. *palpitant* (lit. 'that makes (one's heart) pound') 'thrilling'
(*palpiter* 'pound, flutter')

These adjectives have two main properties, explained in section 7:

- (3) a. The base verbs must be slang or colloquial.
b. The adjectives qualify psychological causes and cannot qualify physical causes.

² Cf://www.cnrtl.fr/ and <http://www.jacqueslanciault.com/2010/11/19/le-mot-du-jour-poilant/>.

As for the first observation, apart from (2b) *palpitant* discussed in section 10, and *haletant* (note 3), all the base verbs are slang or colloquial. Standard bases usually give bad results: **riant* ‘laughing’, **transpirant* ‘sweating’, **vomissant* ‘vomiting’, etc.³ However, not all synonymous slang verbs may form a *Vant* adjective, like **dégobillant* (lit. ‘puke-ing’), so (3a) is a necessary but not sufficient condition, something that I will have to leave unexplained.

As for the second observation, those adjectives name qualities of psychological causes. Psychological causes produce emotions and emotions cause certain characteristic physical reactions. This canonical relation between the emotion and its physical effect allows the psych adjectives to qualify the psych cause as that which causes the canonical physical effect.

In the French adjectives, these canonical effects are bodily processes such as gut reactions and other organic irrepressible reactions (or overstated such reactions, as with *chiant*). As noted in (3b), we see below in (4) that, even if these uncontrollable organic reactions may have physical causes, like a medical treatment, temperature, etc., none of these adjectives may qualify a physical cause. The stars I have put on the examples indicate that the reading under consideration is rejected, that is to say, in all these sentences, I have starred the physical interpretation. Some of these sentences may get a psych reading, so they are not to be excluded with that meaning. For example, (4a) can be read as ‘the scene of people laughing after inhaling laughing gas is funny (makes me laugh)’. Obviously, that is not the relevant reading, which is ‘laughing gas, through the effect of its molecules, makes people laugh’. In other words, *marrant* must mean ‘funny’; it cannot merely mean ‘makes people laugh’. The same holds for Viagra (4b), which cannot be said to be ‘sexy’ (*bandant*) even if it can be said to give a hard-on, etc.:

- (4) a. Ce film/*Le gaz hilarant est bidonnant, marrant, poilant, tordant
 ‘This movie/*Laughing gaz make(s) one laugh’
- b. Elle/*Le Viagra est bandante(e)
 ‘She/*Viagra gives a hard-on’
- c. Ce cours/*Ce laxatif est chiant !
 ‘This course/*This laxative makes one shit’
- d. Elle/*L’Ecstasy est craquant(e)
 ‘She/*Ecstasy makes one crack up’
- e. Des remarques pareilles/*Des doses d’héroïne, c’est flashant
 ‘Such remarks/*Doses of heroin give one a flash’

³ *Désopilant* ‘hilarious’ is not slang, but the obsolete 16th C verb *despoiler* ‘clear’ was causative, so the adjective was regular, lit. ‘which clears (one’s spleen)’. From <http://www.cnrtl.fr/etymologie/d%C3%A9sopilant/>.

Haletant (lit. ‘panting’) ‘suspenseful’ is a true exception and perhaps *hallucinant* (lit. ‘hallucinating’) ‘incredible’ though the latter seems to derive from the colloquial expression “j’hallucine!” As for *suant*, the verb *suer* ‘sweat’ is not slang except when it bears the connotation that the thing that makes someone sweat is unpleasant, which is the case with *suant*, so it respects the observation on slang.

- f. Se retrouver là, c'était flippant/trippant/*L'Ecstasy est une pilule flippante/trippante
'Finding myself there, that made me flip/go on a trip'/*Ecstasy is a pill that makes you flip/go on a trip'
- g. Une histoire pareille/*La gastro, c'est gerbant
'Such a story/*Gastroenteritis, it makes you puke'
- h. Ce morceau de musique/*Ce parachute est planant
'This music/*This parachute makes you glide'
- i. La musique d'ascenseur/*Le sauna, c'est suant
'Musak/*A sauna, it makes you sweat'
- j. Un rendez-vous manqué/*Avaler de travers, c'est rageant/râlant
'A missed appointment/*Swallowing the wrong way, it makes one moan'

Let us turn to English. Below are some exceptional causative adjectives. Given that English has nominal *Ving* forms, in order to avoid ambiguity, I have chosen contexts that show that they are adjectives (intensified, or coordinated with another adjective, or predicative). The formation is productive, so this list is not comprehensive. The sentences below are all from the internet and for clarity I have put the adjectives in bold:

- (5) a. *Other people find your condition as thrilling and **eye-watering** as you do yourselves* (about being in love)
(lit. 'that makes your eyes water') 'sad', 'moving'
- b. *...pointing out votes by her opponent that are **eye-raising** on the surface*
(lit. 'that makes you raise your eyes') 'surprising'
- c. *It is simply **hair-raising***
(lit. 'that makes you raise your hair') 'horrifying', 'frightening'
- d. *10 most **head-scratching** lyrics from 'Yeezus' A sampling of funny, offensive and just plain bizarre wordplay on Kanye West's new album.*
(<http://www.usatoday.com/story/life/music/2013/06/14/most-head-scratching-lyrics-of-kanye-wests-yeezus/2425243/>)
(lit. 'that makes you scratch your head') 'puzzling'
- d. *these combats are very spectacular, strong, **heart pounding** and reserved to a minority of individuals*
(lit. 'that makes your heart pulse/pound') 'exciting'
- e. *this was **heart-stopping/racing/thumping***
(lit. 'that makes your heart stop/race/thump') 'scary', 'impressive'
- f. *Its speed is **jaw-dropping***
(lit. 'that makes your jaw drop') 'astonishing'

- g. *this **nail-biting** and dark mystery*
(lit. ‘that makes you bite your nails’) ‘suspenseful’
- h. *The best MD&As should be gripping and **page-turning** stories*
(lit. ‘that makes you turn its pages’) ‘suspenseful’, ‘captivating’

As in French, the cause is something that provokes the emotion that has the canonical physical effect expressed by the N-V compound.⁴ Clearly, these adjectives belong to the class of psych forms we are dealing with, except that the physical effect is not always an organic process, but also a compulsive (*turn pages, scratch head, bite nails, etc.*) or involuntary (*jaw-dropping, etc.*) reaction, still, the characteristic physical responses to the emotions.

As in French, the adjectives cannot qualify physical causes:

- (6) *Such a heart-stopping pill, such a jaw-dropping puff of air, etc.

The English class has different internal properties than the French one (see sections 8-9). First, the verbs need not be substandard, second, they may not be intransitive: *quite a *sweating adventure*, etc., and third, they may even be agentive: *turn pages, bite nails*, etc. Their main properties will be explained in section 9:⁵

- (7) a. The adjectives must be N-*Ving* compounds, in which N is the DO of the V.
- b. If the V is unaccusative, the N must name a body-part. If the V is transitive, the N does not have to name a body-part.
- c. The adjectives cannot qualify physical causes but mental triggers.

The reader may note that, in (7c), instead of talking of emotions, I mention “mental triggers”. That is because the question whether there may be other mental processes than emotions that have a direct effect on the body, and whether speakers use those causal relations in grammatical constructions, logically comes to mind and the answer is positive. In French, for a reason I will leave unexplained, apart from a few exceptions (note 7), *Vant* adjectives are restricted to the domain of emotions, while (7c) says that English can use a larger class of mental triggers. Let us consider what mental triggers of physical reactions there are, and whether they may be expressed as psych Causes, which will lead us to Finnish and other languages.

3. Rhythm, smell, and other mental triggers

This section is tentative, because the adjectival status of the *-ing* form is not always clear. Still, the question raised is relevant and brings interesting results.

⁴ In forms like *toe-curling embarrassment, toe-tapping* (or *finger-tapping*) *impatience, teeth-grinding remorse, hair-pulling remorse*, the *Ving* form qualifies the emotion and not the thing that causes the emotion. I think these *Ving* forms are nouns, not adjectives, and they deserve a separate analysis.

⁵ Psych *-er* nouns may also be formed in the same manner:

- (i) page-turner, nail-biter, heart-stopper.

They are interesting, first, because they follow the same phy-inside-psych pattern as the N-*Ving* adjectives, and second, because they seem to contradict the observation that psych *-er* nouns, like **annoyer*, are impossible, apart from slang ones like *bummer* or *shocker*. I leave them for research.

Like emotions, rhythm, musical or not, may trigger immediate physical responses, like movements of the body. Rhythm is not an emotion, but a stimulus that, when perceived by an animate being, acts on the mind in such a way that the body automatically responds to it. Grammatically, rhythm can be the Cause of a *Ving* form whose verb names the response, as in *foot-tapping songs*, *footstomping/foot-thumping music*. Even though all of them can be analyzed as deverbal action nominals, some are not fully excluded as adjectives:

(8) ?a rather foot-stomping song

Other mental triggers of physical reactions are smell and taste, which make us salivate or make faces on perception, as with *nose-flaring stench*, *nose-wrinkling whiff of sulfur* for smell and *nose wrinkling beverage*, *mouth-watering smell* for taste. Again, the data is not clear-cut, but some forms seem to be adjectival:⁶

(9) a. They emitted a nose wrinkling, noxious, stench (internet)/a pungent, nose-wrinkling, stench (internet)

b. a rather mouth-watering smell

Pain triggers physical reactions, which can be named in roots, and some of these *-ing* forms are adjectival:⁷

(10) ?a rather head-spinning/?teeth-clenching pain

The neat result of this search is that, in some adjectival N-*Ving* forms, the mental cause that can trigger a physical effect may be a percept. So, ObjExp constructions may be built with psych Causes other than emotion causers. In conclusion:

(11) A phy-inside-psych construct names the inchoation into a certain state of an experiencer's mind. That state of mind is the one that causally leads to the physical subevent.

This brings us to intention.

4. Impulse: phrasal phy-inside-psych forms in Finnish, Albanian and other languages

Intention is another mental trigger of physical action. An intended action has a correlate in the brain, the specific neural activity prior to it which is a slow negative potential shift that occurs before the action. So, the state of the mind prior to effecting the action should in principle be allowed to be named in a phy-inside-psych ObjExp structure, given that such structures express an experiencer's psychological state that causally precedes the physical action named

⁶ The adjective *salivant* 'that makes one salivate' as in *odeur salivante* 'salivating smell' is an exception in French because it is not slang and because the cause is a percept, as in English.

⁷ There are simple *Ving* forms, and not compounds, like *throbbing*, *pounding*, or *puls(at)ing* (*pain*), apparent counterexamples to (7a), but in those, *pain* corresponds to the subject of the verb: 'pain that throbs, pounds, puls(at)es', so they do not belong to the exceptional *Ving* class we are looking at. As for *howling*, *wrinkling* and *wincing* (*pain*), it is not clear whether they are nouns or adjectives. If the latter, they are counterexamples to (7a) which should be accounted for.

by the subevent. I claim that this is what happens in the desiderative construction in Finnish (Pylkkänen 2000a and 2000b; Nelson 1999; Lavine 2010), the Involuntary state in Albanian (Kallulli 2006; Rivero and Milojević Sheppard 2008), the FEEL LIKE construction in Slovenian and other Slavic languages (Marušič and Žaucer 2006; Ilic 2013), and others. We are going to see that they all have the ObjExp structure of the language they occur in, with a phy subevent, so that they may be analyzed as belonging to the phy-inside-psych structures brought to light in this article. Here is a desiderative sentence:

- (12) Maija-a naura-tta-a Finnish
 Maija-PART laugh-CAUSE-3SG
 ‘Maija feels like laughing.’ (Pylkkänen 2000a:19b)

In Pylkkänen (2000a), this stative construction expresses a sudden urge to do what the verb names, from the Partitive participant, and at the same time this action, named by the subevent, does not take place in the world.⁸ In other words, such sentences mean desires to do what the subevent names. I claim that it has an ObjExp psych structure, similar to the phy-inside-psych structure of *Ving* adjectives.⁹ First, consider the regular ObjExp frame in Finnish. The Causer is Nominative, the verb carries the causative morpheme, the Experiencer is Partitive and the clause names a state:

- (13) Hyttyset inho- tta- vat Mikko-a
 Mosquitoes-NOM findDisgusting-CAUS-3PL Mikko-PART
 ‘Mosquitoes disgust Mikko (now)’ (Pylkkänen 2000b: (30b))

The Partitive Case is the Case of objects of atelic predicates and hence of statives too (Kiparsky 1998). ObjExpVs are stative causatives (Arad 1998; Pylkkänen 2000c; Martin 2002), they mean that an experiencer is in the emotive state triggered by what the subject names.

Second, with certain psych verbs, it is possible to express only the caused subevent, without any Cause, and in that case, the TP names a feeling. The verb has 3rd person singular,

⁸ Language-particular conditions cannot be discussed here, but in Finnish the V cannot be transitive or unaccusative, as often observed, and indirectly illustrated in this pair from Nelson (1999):

- (i) Hän kirjoitt-i kirjee-n.
 s/he write-PAST/3S letter-A
 ‘S/he wrote a letter’ (Nelson:13a) (V with its DO)

Hän-tä kirjoitu-tt-i.
 s/he-P write-CAUS-PAST-3S
 ‘S/he felt like writing’ (Nelson:13b) (V without its DO; desiderative construction)

⁹ With *Ving* adjectives too, the subevents do not name actually occurring events, they describe the state of the mind, such as finding something scary, etc., that triggers a characteristic physical reaction, such as biting one’s nails, etc. For example, the truth-conditions of an adjective like *nail-biting* require checking the experiencer’s feeling and not whether he/she indeed bites his/her nails. The adjectives mean that the cause of the emotion or sensation makes one prone to have such and such a physical reaction.

unlike when ObjExp constructions have an overt NOM Cause, as in (13) above, in which the verb agrees with it; and the Experiencer is Partitive again:

- (14) Mikko-a inho-tta-a
 Mikko-PART disgust-CAUS-3SG
 ‘Mikko feels disgusted’

It is this kind of sentence that is identical to the desiderative construction, where the only thing that is expressed is the caused subevent, and the whole structure names the entering into the psychological state that holds at the time named by the temporal morpheme of the clause. In desideratives as well as in (14), the verb carries the overt causative morpheme, the Experiencer carries partitive Case and the verb has 3rd person singular. As with *Ving* adjectives like *jaw-dropping*, the state of mind named in the Finnish TP and in the *Ving* adjectives is that which causally precedes the physical action, and the TP means that what takes place is the entering into that state of mind, not the physical action named by the subevent.

We are now going to consider one particular property of the desiderative construction, the fact that no argument may occur in subject position. In other words, they cannot have the form of (13). Moods, desires to act, are like emotions, they trigger physical events. And, like emotions, urges to do something very often themselves have a cause. With ordinary ObjExpVs like *amuse* and with the *Ving* adjectives studied here, the subject position can and must be occupied by the causer of the effect: *the news amused John*, *the news is jaw-dropping*.¹⁰ However, this is not possible in desiderative sentences.

Let us consider properties of the grammatical subject of desiderative sentences. First, semantically, in Finnish desiderative sentences, the cause of the mood can be an emotion or a sensation. For instance, (12) can be said in a situation where Maja finds something funny, or if some bug is tickling her (Rea Peltola, personal communication). Second, syntactically, Pylkkänen (2000a) notes that the cause of the mood may be further expanded by Sluicing:

- (15) Minu-a naura-tta-a mutt-en tieda mika.
 I-PAR laugh-CAUSE-3SG but-not 1SG know what.NOM
 ‘Something makes me feel like laughing but I don’t know what (makes me feel like laugh)’ (Pylkkänen 2000a (24a): 143)

However, and this is one of the particular properties of the desiderative construction, the causing participant may not be named in subject position. It is not possible to express a nominative overt cause of the mood, in a TP like ‘the violins made Maja FEEL LIKE dancing’:

- (16) Viulut tanssi-tt-i-vat Maija-a
 violinsNOM.PL dance-CAUS-PRET-3PL Maja-PART

Such a sentence can only have the dynamic agentive physical meaning, where Maja indeed dances under the will of violins, personified in that case. In other words, a desiderative sentence cannot express the Cause in subject position, in a structure equivalent to the full psych construction of (13). It can only have the subevent expression, like psych constructions like (14), with the syntactic subject necessarily a covert expletive. I will thus later propose the

¹⁰ I assume that the subject of *be* can be defined as the subject of the AP.

descriptive generalization, in (24), that desideratives are made possible in a language only if that language has expletive *pro* subjects.

For the moment, to pursue the empirical discussion, let us have a brief look at Albanian in (17), where the verb is non-active (NACT) and imperfective, yielding a stative interpretation, and Slovenian in (18):

(17) Benit i ha-hej (një mollë) (Albanian)
 Ben_{DAT} DAT.CL.3s eat-NACT.P.IMP.3s [an apple]_{NOM}
 ‘Ben felt like eating an apple’ or: ‘Ben was (apple)-hungry.’ (Kallulli 2006: (2b))

(18) Gabru se pleše. (Slovenian)
 G_{DAT} SE dance_{3P,Sg,Pres}
 ‘Gaber feels like dancing’ (Marušič and Žaucer 2006: (2))

Studying Slovenian and other Slavic languages, Marušič and Žaucer (2006) claim that (18) contains the covert FEEL LIKE counterpart of the overt predicate, based on evidence for their bi-clausal structure, with the structure of (18) the same as the following:

(19) Gabru se hoče/lušta plesati. (Slovenian)
 G_{DAT} SE want/desire_{3P,Sg,Pres} dance
 ‘Gaber feels like dancing’ (Marušič and Žaucer 2006: (3))

They discuss and reject the structure as an instance of the ObjExp construction despite the similarities with this construction in that language, where the verb has non-active morphology (the reflexive), and the clause has a stative reading. Similarly, Cathcart (2010) introduces a covert Impulsive predicate.

A good question is whether these new semantic primitives, like the IMPULSATIVE or FEEL LIKE predicates, are necessary, or whether the ‘feel like’ psych reading of the TP comes from the structure. For reasons of economy, I claim that there is no special predicate to add to grammar, but a statement on the one-to-one correspondence between form and meaning: the impulsive interpretation mainly reads off from an ObjExp psych structure with a physical V as the inner event. Given that it is a psych construction, it has an experiencer in a certain state of mind, and given that it is causal (the subevent is a complement of a causal morpheme), it names the state of mind that causally leads to the subevent.

What still remains to be explained is why, when the clause has a referential subject, such constructs may no longer be desiderative because they must entail that the subevent has been actualized: they are interpreted as usual physical transitive causative constructions. I will thus add in an *ad hoc* fashion here that the desiderative interpretation is possible only if no overt subject cause is expressed in the clause, which I will state as condition (24) in this article.

5. Words vs clauses

In this section, we check whether there are differences between the *Ving/ant* words and clauses. There are two kinds of clauses that deserve comparison with words, first, the desiderative clauses, second, the English and French clausal counterparts of the adjectives.

Let us first consider the canonicity constraint, which I expand on in the next paragraph. That constraint is supposed to apply to words, hence to *Ving/ant* adjectives and not clauses, hence neither to the desiderative clauses nor the phrasal translations of the adjectives. I take “word” as a unit that is a building block of the construction of a clause, a unit that enters the Numeration, while syntax picks the elements from the Numeration. A Numeration

may contain words that have a structure, like the one I am developing for *Ving/ant* adjectives. Whether that structure is visible to syntax is a question independent of our concerns. Let us turn to the canonicity constraint.

Green (1974), cited in Rimell (2012: 146), has claimed that instrument N-to-V conversion like *hammer* must produce verbs meaning that the referent of the N is used “for the purpose for which it was designed or adopted.” For N-to-V derivations like *saddle*, Kiparsky (1997) requires the thing named by the N to have its canonical use in the action named by the V.¹¹ Rimell (2012: 150) argues that canonicity applies to all conversions, with the N canonical in some way with the action named by the verb. It can be checked that the same holds for word-formation in general.¹² I said earlier that the phy “roots” of *jaw-dropping* and *marrant* named the canonical effects of their causes. That is why, for example *page-turning* may not have the meaning ‘boring’, because page-turning is not viewed as the canonical effect of boredom. Though, in a clause, the cause and the effect may combine, as in *that thriller was so boring that he turned page after page to get to the end faster*. The canonical requirement thus must hold between the meaning of the base, a V naming a physical action, and the meaning of the whole, an adjective naming a psychological quality, because they are words. Moreover, this canonical requirement is what makes possible the psych meaning of these adjectives. Because emotions trigger specific physical effects, an emotion can be identified by its physical effect, so that the cause of an emotion can be identified as the cause of that specific effect. So, in using the canonical relation between emotion and the physical effect of the emotion, the *Ving* adjectives get the psychological meaning on logical grounds, where a psychological cause (the N modified by the adjective) is expressed as causing its canonical physical effect (the subevent).

Let us now compare such words with phy-inside-psych clauses, because clauses are not supposed to be subject to the canonicity constraint. We have encountered clausal phy-inside-psych structures, so it is worth checking whether they behave differently than adjectives. In desiderative-like clauses, the relation between the meanings of the physical verbs, like laughing (Finnish) or eating an apple (Albanian, Slovenian), and what provokes the desire, like tickling or a funny scene (Finnish), an apple, etc. (Albanian, Slovenian), is not constrained by canonicity, in the sense that any plausible thing that can make someone want to laugh, or eat, etc. may function as the trigger of the impulse, and does not necessarily have to be some canonical cause, like an appetizing smell for the desire to eat, or something funny for the desire to laugh, etc. This suggests that the canonicity constraint does not apply to desideratives, as expected.¹³

¹¹ As a response to an anonymous reviewer, the N may or may not, in addition, have a metaphorical and/or metonymic meaning, as in *saddle sb with problems*, but that does not mean that the noun is not used in its canonical way. The canonical use of a saddle is that of allowing someone to put weight on some animate being so that that weight stays in place. Metaphor on the notion of weight results in a shift from the physical to the psychological domain, but the saddle-like thing still remains something that allows one to securely put a burden on X.

¹² Harley (2008) states this condition on lexical heads, rather than on its presumed lexical domain of application, because it applies in syntax (*go to university*) as well as the lexicon. Not to launch a theoretical discussion outside of the scope of this article, I will continue to talk of this condition as a condition on word formation.

¹³ As a last remark, the canonicity condition might apparently explain why *Ving* adjectives cannot have the physical meaning, and this threatens the relevance of the coming account. For

Let us now turn to the second type of clause to be compared with the adjectives, their French and English counterparts, which will shed light on another, important, difference between adjectives and TPs in French and English: *Ving/ant* adjectives do not find correlates in TPs (I show the relevant unacceptable reading with a star), and we must try and understand why (see (26) and its subsequent explanation):¹⁴

- (20) a. Une musique planante vs. *Cette musique plane (with the psych meaning)
 ‘Hovering music’ vs ‘*That music hovers’ (same)

example, if *jaw-dropping* cannot have a physical meaning, that could be because there is no predefined physical cause of the effect of opening one’s mouth. If that is true of all physical causes, then word formation in *-ing* would be impossible with physical causes. However, some physical agents in fact have canonical effects, like anti-depressants, which provoke salivating and drooping of the body, onions, which provoke tears, or staying under the sun, which provokes skin reddening, and none of them may be understood as the causes of *jaw-dropping* or *eye-watering*, etc., only mental triggers may.

¹⁴ There occur lots of phrasal equivalents to (20b) on the internet. Most speakers I have asked for judgments do not accept them, but still some speakers do:

- (i) This will turn heads/drop jaws/raise hairs/stop hearts/spin heads, in the government.

All these expressions have N-*Ving* adjectival counterparts, and this reveals that they certainly obey the same syntactic and semantic restrictions. So, if a potential adjective is not used, such as **shoulder-shrugging*, we do not expect the phrasal formula to be fine either, and that is borne out:

- (ii) *Such a bad idea will simply shrug lots of shoulders.

I assume that speakers who may produce forms like (i) construe phrases semantically and syntactically equivalent to the *Ving* adjectives like *head-turning*, as *calques*, somehow. Importantly, given that adjectives name properties, these sentences should only be allowed to name properties too. That is the case, such clauses are properly paraphrased with adjectives, as in ‘lots of people will be surprised, angry’ etc., and the experiencer must be indefinite. As soon as the reference of the DP is known, as in (20b) or below, the result is bad:

- (iv) *Such results at the poll will drop the Prime Minister’s jaw.

Now, there is a regular class of N-*Ving* adjectives that cannot have clausal counterparts for all speakers, the transitive ones:

- (v) *This will turn many pages/ will bite nails.

That is because these are clauses and in a clause, all the arguments of the verb must merge, so the verbs *turn*, *bite*, etc., must realize their Agent. However, if they do, that produces ill-formed sentences like **this will turn people many pages*, where two complements, the Agent-experiencer and the DO, compete for Case checking, an impossible situation. There is thus no way to form clauses expressing properties with transitive verbs as calques of the adjectives *page-turning*, or *nail-biting*.

- b. A jaw-dropping story vs. *The story dropped his jaw (same)

We now have an overview of the sum of facts that have to be explained concerning the physical vs psychological nature of the constructs under study, answered in the next section:

1. *Ving/ant* adjectives only have a psych, as opposed to physical, reading; namely, the cause must be psychological.
2. Finnish clauses can and must be psychological if and only if the clause has an expletive *pro* subject.
3. Apart from regular exceptions (note14), clausal counterparts of the *Ving/ant* adjectives in English and French are ill-formed.

6. Why psych and not phy readings

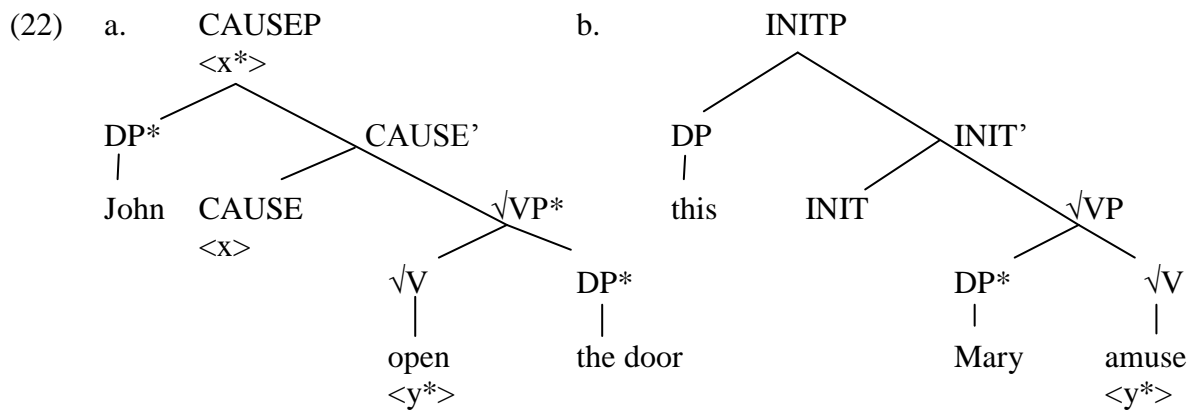
To explain why *Ving/Vant* adjectives and the desiderative-like constructions can only have a psych reading, we need to distinguish psychological predicates from all others. According to Grimshaw (1992) which has fully inspired the present account, a psych Cause is not primarily an argument of its verb but an aspectual element, contrary to other subjects, which are primarily semantic arguments of their predicates, and only secondarily aspectual. *Aspectual* here refers to the shape and realization of an event, in terms of its initiation, its course and its end. In the spirit of Grimshaw (1992), implemented in Pylkkänen (2000a), I will assume that if a Cause is not psychological, it must be an argument of some lexical head. In a complementary fashion, psychological Causes are interpreted through the aspectual structure of their constructs, as initiators, for being responsible for the effect named by the subevent, and not as arguments of overt or covert verbs.

Empirically, the psych Causes that we are dealing with are the subjects of verbs like *amuse*, of *Ving/ant* adjectives like *jaw-dropping* and the implicit causes of desiderative-like constructions. Our task is to distinguish psych causes from all other external arguments. Concerning ObjExpVs like *amuse*, since Pesetsky (1995), it has been assumed that these verbs are represented as a causative morpheme taking a psych root as its complement. I will identify this primitive causative morpheme as INIT, the aspectual head that introduces the initiator of an event, as in Ritter and Rosen (2000), or Ramchand (2008). I borrow these authors' aspectual heads like INIT only for psych verbs, not all VPs. And I assume that all other external arguments are introduced as subjects of primitive predicates, such as *v*, and CAUSE of the transitive verbs that enter the causative alternation (cf. *open*, *break*, etc., Levin and Rappaport 1995, among others).

Let us consider how the primitive predicates CAUSE and *v* on the one hand and the aspectual INIT head on the other differ. As predicates, CAUSE and *v* must have subjects. If no referential subject merges, their theta-grid is not fully saturated, and the structure is excluded by some form of the Projection Principle, which requires that, in clauses, argument-grids of predicates be fully saturated. As for the aspectual marker INIT, it is not argument-taking. If INITP has a specifier, that DP is interpreted as the initiator of the subevent, and if not, then the structure has no initiator. I summarize:

- (21) a. CAUSE and *v* are predicates with an external argument, which must be saturated in syntax so they require a referential subject (as opposed to an expletive).
b. INIT is an aspectual marker. If a DP merges as spec,INITP, the DP names the initiator of the subevent. If not, the grammatical construct is silent on that initiator.
c. A DP in an external-argument position is a physical cause or an agent if and only if it is the argument of some predicate. The only other type of cause is the psychological cause.

(21c) entails that physical causes cannot be introduced by INIT. In order to visualize the differences between a structure with a causative predicate and one with INIT, here are the canonical structures of verbs with CAUSE and INIT, which define them respectively as physical actions and psychological situations. Importantly, in addition to the causative morpheme, it is also the structure of the subevent that distinguishes them. With a physical verb, the subevent has a transitive structure, and with an ObjExpV, the subevent has a subject-predicate structure, where the inner subject is unequivocally interpreted as an experiencer, given its position and the psych semantics of the clausal subject.¹⁵ I assume that these different structures are a matter of subcategorisation by the various causative morphemes. In structure (a), the subject must unequivocally be a physical actor, given that it must saturate the external argument place of CAUSE, and in (b) a mental trigger, given that it is not the argument of a predicate:



Let us return to a desiderative clause like (12), rewritten as in (23):

- (23) Maija-a naura-tta-a
 Maija-PART laugh-tta-3SG
 'Maija feels like laughing.'

In Finnish, the causative *-tta* morpheme occurs in a number of causative constructions, which means that it can be an instance of *v* or of CAUSE, which require referential subject arguments. But I assume that it can also be aspectual, an instance of INIT, and in that case it

¹⁵ The inner-subject position of experiencers under a causative morpheme was claimed early on and has appeared in print in Häik (2005) on the basis of the configuration of object *pro* in Romance, always an Experiencer:

- (i) La musique, ça attriste (*pro*). vs. *La musique, ça infiltre (*pro*).
 Music, that saddens (one). 'Music, that seeps into (things).'

The position of object *pro* as an inner subject is attested in overt forms like:

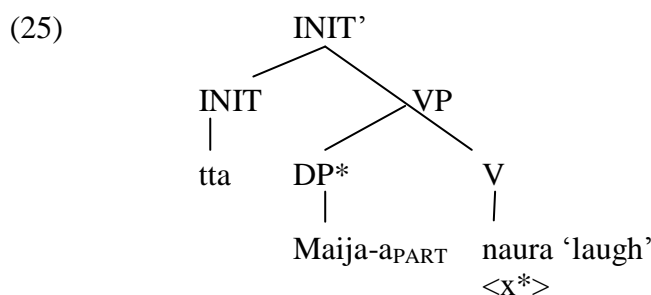
- (ii) La musique, ça rend (*pro*) fou.
 'Music, that drives (one) mad.'
 (iii) La musique, ça fait (*pro*) pleurer.
 'Music, ça makes (one) cry.'
 (iv) La musique ça met (*pro*) de bonne humeur.
 'Music, that puts (one) in a good mood.'

does not require a referential subject, which is the case in desideratives. Plausibly, the subject of a desiderative TP is expletive *pro*, as in Holmberg (2005) (but see also Pykkänen 2000a, where it is an implicit argument, not realized in syntax).

To account for desiderative clauses, let us thus assume the following descriptive requirement on the relation between form and meaning, which partially bases the existence of phrasal phy-inside-psych structures in a language on the capacity for that language to have an expletive *pro* subject:

- (24) In a clausal phy-inside-psych ObjExp structure [C [DP_{exp} ...]_{phyVP}] the subevent names a mental experience of the experiencer if and only if the subject position is occupied by expletive *pro*.

This is the first phase of (23) *Maija-a_{PART} naura-tta_{CAUS-a_{3SG}}* ‘Maija_{PART} feels like laughing’, not including *a* (3SG), higher in the tree. I now represent it with INIT and not with Pykkänen (2000a)’s CAUSE:



The embedded subject gets Partitive case, as in regular ObjExp constructions. And because it is the Spec of the inner V, that DP saturates the subject role of the inner V. The meaning of INIT, which yields the meaning that its subevent complement names an effect, together with the inner subject position of the DP yield the experiencer reading of that DP. INIT does not require an external argument, so expletive *pro* is fine and by (24) the subevent must be a mental event, so the whole TP names the mental state that causally leads to the subevent, yielding the ‘feel like’ interpretation of the whole eventuality, where the desired subevent occurs mentally as the target of the desire but does not happen in the outside world.

Thus, the subevent of (14) (*Mikko-a_{PART} inho-tta_{CAUS-a}* – Mikko_{PART} disgust-CAUS-3SG – ‘Mikko feels disgusted’) names a feeling, and the subevent of a desiderative like (12) (*Maija-a_{PART} naura-tta_{CAUS-a_{3SG}}* ‘Maija_{PART} feels like laughing’) an act that is desired, both mental events. (24) entails that the subevent of (12) does not happen in the outside world, whereas in (16) (*Viulut tanssi-tt-i-vat Maija-a* ‘Violins_{NOM} dance-tt Maj_{PART}) the subject position is occupied by a referential DP, so the subevent cannot name a mental event, it has to be interpreted as happening in the world.

Let us turn to English and the differences between words and clauses, and between English and Finnish. As we saw in (20), *Ving* adjectives do not have clausal counterparts. It is impossible to get a psych reading of sentences like the following:¹⁶

¹⁶ In fact, there is a causative *drop*, but that verb only has a physical meaning, not a psych one, and in that case, the causative covert morpheme is the CAUSE predicate, not INIT, restricting it to the physical reading.

In case a physical V also has a psych meaning, like *touch*, I assume that the psych form is created from the physical verb through a word-formation process which provides the

(26) *The news dropped his jaw ('surprised him').

If (26) were to have a psych meaning, it should at least have INIT instead of CAUSE, but INIT does not come for free. It either belongs to the syntax and semantics of verbs like *amuse* or it is realized by a dedicated morpheme, like *-tta* as we have just seen, or *-ing*, as we will shortly see. So (26) cannot have the psychological reading.

I have just mentioned that if *jaw-dropping* may have a causative psychological meaning, as opposed to its clausal counterpart *drop sb's jaw*, it is because the adjective has the *-ing* morpheme. Let us see how so. We turn to the second part of the article, the analysis of the *Ving/ant* adjectives in French and English.

7. Analysis of *-ing* and *-ant* with ObjExp roots

This section deals with regular *Ving* adjectives, to be able to tackle the exceptional adjectives later. I do not consider theta-roles as primitives, but I use terms related to theta theory for ease of description. I will work on the following hypotheses concerning words formed from verbs:

- (27) In a word with a verbal base:
- The verb has the same theta-grid as when used in syntax.
 - Saturation is the operation that relates the verb to any of the expressed arguments.
 - Saturation must be incrementally compositional, so an argument can saturate a place only if the lower arguments of the theta-grid have done so.
 - Not all places need be saturated (i.e. arguments do not have to be expressed).

The reason for (27c) is illustrated in Kayne's famous examples, which show that it is possible for nouns to leave out an argument, as in (28c), but only once the lower ones have been saturated, making (28a) impossible because it skips the saturation of the internal argument. Below I indicate saturation with a star on the argument-place of the base verb:

- (28) a. *The German destruction (*destroy* <Ag*, Theme>)
b. The German destruction of the city (*destroy* <Ag*, Theme*>
c. The destruction of the city (*destroy* <Ag, *Theme>

The reason for (27d) is that words may leave out arguments, as opposed to clauses, in which a verb must saturate all its arguments:

- (29) This jump was extraordinary. (*jump* <Ag> unsaturated)
(30) *There/it jumped. (*jump* <Ag> unsaturated)

Returning to the discussion, I follow Dowty (1979), Tenny (1994), van Voorst (1988) Borer (1994), Ritter and Rosen (2000), Ramchand (2008) and Arad (1998) in the idea that Aspect constrains, perhaps only partially, the projection of arguments. Moreover, following Grimshaw (1992), Ritter and Rosen (1997 and 2000), Tenny (1995), Guéron (1995), Bailleul (2013) and others, exceptionally, certain arguments can be licensed by Aspect without being thematic arguments of a lexical head, such as the subjects of *have* and, as done here, the subjects of ObjExp constructions.

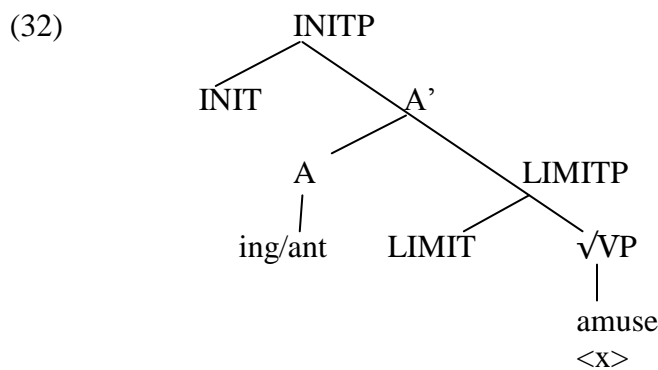
Concerning regular adjectives like *amusing/amusant*, as in Williams (1981), suffixes carry category names, so *-ing* and *-ant* are adjectival. Let us assume that *-ing* and *-ant* are

root with INIT instead of CAUSE, yielding the form and meaning of a psych verb. That verb then behaves like any other ObjExp, for example it can yield a *Ving* adjective, like *touching*.

aspectual, introducing the initiator of the subevent. Given that they are not argument-taking, it is impossible for the adjectives to apply to physical causes because such subjects must always be arguments, a welcome result, because that excludes physical readings for *-ing* adjectives, as in **a touching leave* ‘a leave that touches things around it’ (see the discussion of (21)-(23)). Moreover, anticipating on the account of the role of slang in French (*marrant*) and the obligatory presence of the DO in English (*jaw-dropping*), let us assume that they select the aspectual category LIMITP of Ritter and Rosen (2000) and Ramchand (2008), that is to say, the final part of an event. I will assume the following:

- (31) *-Ing* and *-ant* are INIT heads that select for LIMITP. LIMITP is a psych root or a V with an internal argument.

Regular adjectives have the form below before the root internally merges with *-ing/-ant*:



The predication relation of this adjective with the DP that it applies to makes that DP spec-like to *-ing/-ant*, hence the initiator of the subevent. It cannot be a physical cause because such causes must be arguments of predicates, and *-ing/-ant* are not argument-taking. So it can only be interpreted as a psych Cause, the desired result.

Let us now turn to *marrant* and *jaw-dropping*.

8. Analysis of *marrant*

In this article, I will not account for why psych causes in French are limited to emotions and cannot be percepts, as opposed to English. As mentioned in the preceding section, *-ing/-ant* select for LIMITP, namely, a V with an internal argument, that is, an unaccusative or a transitive verb. But consider the class of phy verbs that can act as roots under *-ant*, temporarily leaving aside *palpiter* ‘pound’ (2b):

- (33) *bander* ‘have a hard-on’, *se bidonner* ‘laugh’, *chier* ‘shit’, *craquer* ‘crack’, *se fendre* ‘split’, *flasher* ‘flash’, *flipper* ‘freak out’, *gerber* ‘puke’, *kiffer* ‘feel pleasure’, *se marrer* ‘laugh’, *planer* ‘hover’, *se poiler* ‘laugh’, *rager* ‘be in a rage’, *râler* ‘moan’, *rouler* ‘roll’, *suer* ‘sweat’, *se tordre* ‘bend’, *tripper* ‘go on a (bad) trip’

They are unergative, not unaccusative, as they should be. So, in a nutshell, I will claim that these one-place unergative verbs can become unaccusative in the affixation process owing to a combination of various mechanisms that make that change of class possible, the main one being the effect of slang. We will see that such base verbs can be treated like unaccusatives because they are slang. As a consequence, this will threaten their capacity to have an experiencer argument, so I will postulate that the experiencer reading comes from a [human] feature capable to be related to the internal argument of these newly-formed unaccusative

verbs. This same feature will later on explain the body-part requirement on a subclass of English *Ving* adjectives.

Coming back to the list above, *craquer* ‘break’ is the only unaccusative. Otherwise, even though non agentive, they all behave like unergatives. There are no clear tests in French, but they take *avere* in Italian and they require a fake reflexive in the resultative construction and may be construed with *one’s way* or *the time away* (Jackendoff 1997) in English:

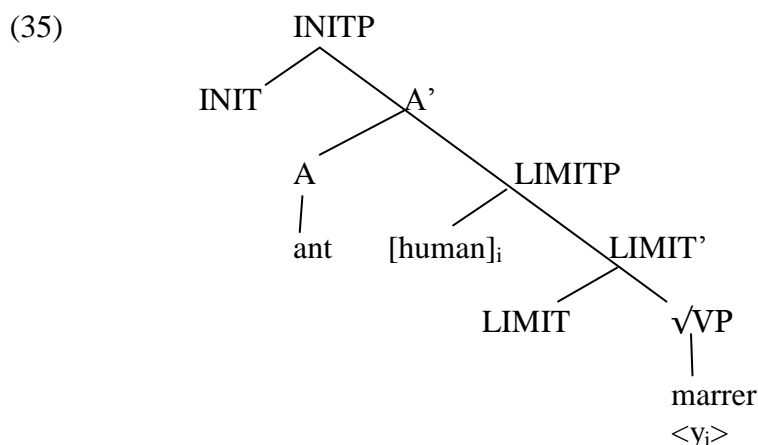
- (34) a. He laughed/sweated himself dizzy
b. He moaned his way to the entry of the grotto
c. He sweated the night away

This concurs with van Voorst (1988), where deep subjects in English name participants that provoke events, with volition or not; Dowty (1991), where animacy is a feature of proto(typical)-roles ranking arguments as subjects; and Levin and Rappaport Hovav (1995).

Recall that by (31), the verbal complement of *-ant* should be a LIMITP, namely, a V with an internal argument. And we have just seen that the (*se*) *marrer* class is unergative, not unaccusative as required. So it must be that such verbs may become unaccusative and internalize their external argument. Let us see how. If organic-reaction verbs in *Vant* adjectives have an unaccusative syntax, then they must also have an unaccusative meaning. Some unaccusatives denote a change of state and others motion to a point (Burzio 1986). Given that organic-reaction verbs do not involve motion, they must become unaccusatives of the first class, like *leak*, *freeze*, *grow*, *open*, etc., which most often take inanimate arguments and express change of state or position of these inanimates. So, they mean that something happens to a body rather than an individual. I claim that this is what happens with organic-reaction verbs in those adjectives. Being an internal argument, the human argument must be interpreted as a body undergoing some process.

But this change in the syntax and semantics of verbs like *se marrer* is a shift in their aspectual and semantic properties, which must be constrained. This answers the question why they are limited to slang. I suppose that treating a human being as a body is a debasing process. Grammatically, iconicity between linguistic form (bad register) and meaning (bad treatment of a human as a body) allows this shift from unergativity to unaccusativity.

So, in the grammatical process we are discussing, an unergative verb like *se marrer* becomes unaccusative by having its argument syntactically and semantically be treated like a body, which is possible because it is a slang word. But this raises another question. In the whole psych event (being funny for someone), it is the individual, as a psychological being, not their body, that is concerned. So, the meaning of the experiencer must be encoded somewhere. I assume that an unchecked [human] feature freely merges as Spec,LIMITP, and that coindexing with the argument of the unaccusative-like V is a way of properly checking it, while providing the desired reading. The form of the French *Vant* adjectives is thus the following, where *marrer* is an unaccusative V with the body of a human as its argument, that argument being identified through *i* as an experiencer, the inner subject of a psychologically caused subevent:



9. Analysis of *jaw-dropping*

Let us now consider the English adjectives, repeated below:

- (36) eye-raising, head-scratching, heart-pounding, heart-stopping, heart-racing, heart-thumping, jaw-dropping, nail-biting, page-turning, etc.

They must all be based on compounds made of the verb and one of its arguments. Apart from a few exceptions, simple adjectives are ruled out, like **laughing* ‘funny’. The N-V compound names a physical reaction or a compulsive action. In all these forms the argument is and, I will claim, must be, the internal argument of the verb. This is the case even with *heart-racing*, the nature of whose base might seem unclear. The verb *race* may behave like an unergative or an unaccusative in the resultative construction, which is acceptable with and without the fake reflexive:

- (37) My heart raced itself out my ribcage/My heart raced to a frenzy.

What is relevant is that it can be unaccusative there, so it can be unaccusative in general, so we can describe all N-*Ving* adjectives as made of a V and its DO, whether the V is unaccusative (*jaw-dropping*) or transitive (*page-turning*, *nail-biting*).

I will borrow Ritter and Rosen’s (2000) explanation for the necessary presence of a DO in a structure. In a D(eliminating)-language like English, a grammatical event necessitates the expression of the delimiter, the DO.¹⁷ So, let us assume that *-ing* selects a grammatical event, explaining why *Ving* adjectives must be DO-V compounds:

- (38) *-ing* selects a grammatical event.

Importantly, this means that the presence of the N is required, even if its meaning can be recovered from the meaning of the verb. For instance, *pound* strongly suggests the heart and still, the adjective **pounding* is ill-formed (but to compare with French, which is not a D-language and does not have (38), see section 10 on *palpitant*).

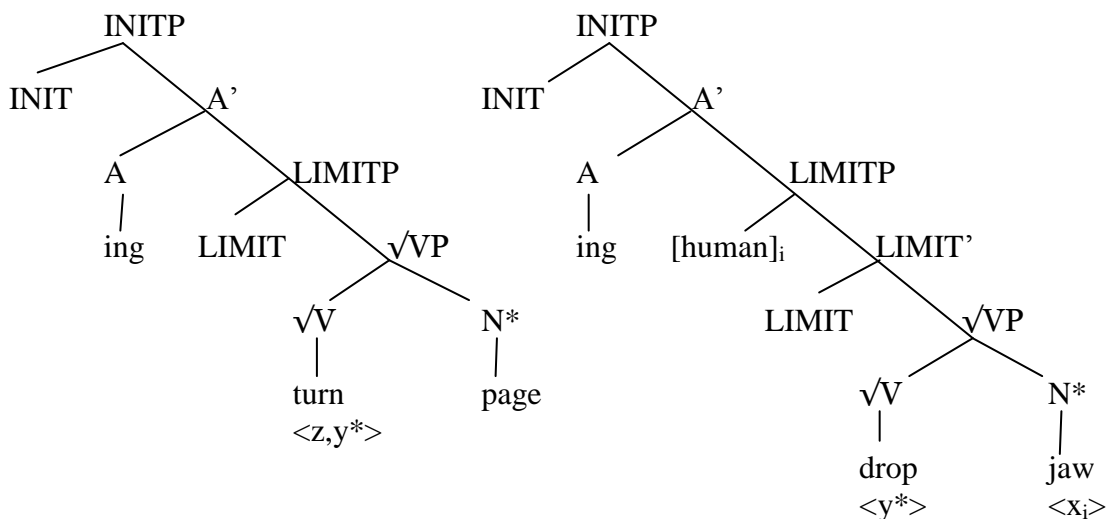
One question remains, and that will explain why the N must always be a body-part with unaccusative verbs (cf. (7b)). If such adjectives have a psych meaning, it is because the

¹⁷ As an anonymous reviewer has mentioned, not all DOs are delimiters, for instance, *head* in *scratch one’s head*, which is an atelic activity. I admit that DOs which are not delimiters are a serious problem for theories that identify DOs with delimiters, but I am borrowing Ritter and Rosen’s theory because it attempts to explain requirements on DOs in certain languages.

cause is not physical but psychological. But then, for a proper meaning to be assigned to the construct, they should also have an experiencer. “Experiencer” is the interpretation assigned to the subject of an INITiated subevent. With transitive verbs as in *turn pages*, *bite one’s nails*, etc., the experiencer is realized in the external argument of the root verb, as in (39a), the human who turns pages, bites their nails, etc. With unaccusatives, as in *jaw drop*, it will be the human feature in the internal subject position, postulated earlier for *marrant*, as in (39b). This will explain (7b), the body-part requirement. Let us see how this works. Ontologically, a body-part or secretion like tears necessarily entail the body, so Ns like *jaw* and *tears* are relational nouns, *jaw* (*x*) and *tears* (*x*) with *x* the possessor. If we assume that the unchecked human feature in Spec,LIMITP and the inherent possessor *x* of these relational nouns are coindexed, and that this coindexing is sufficient to check the feature, then the grammar is fine, with the right reading. This feature, which looks for a checker, explains why most N-Ving adjectives are construed with a body-part. If not, we predict that the verbs cannot be unaccusative but transitive, as in *page-turning* and, importantly, as we will see, *effing*-adjectives, because, there, it is the external argument of the V that provides the experiencer. Here are N-Ving adjectives. In (a), the experiencer is *z*, the external argument of the verb and hence the subject of the inner event, and in (b), it is the human feature identified with the inherent possessor *x* of the N:

(39) a. transitive Vs,
no body-part requirement

b. unaccusative Vs,
body-part requirement

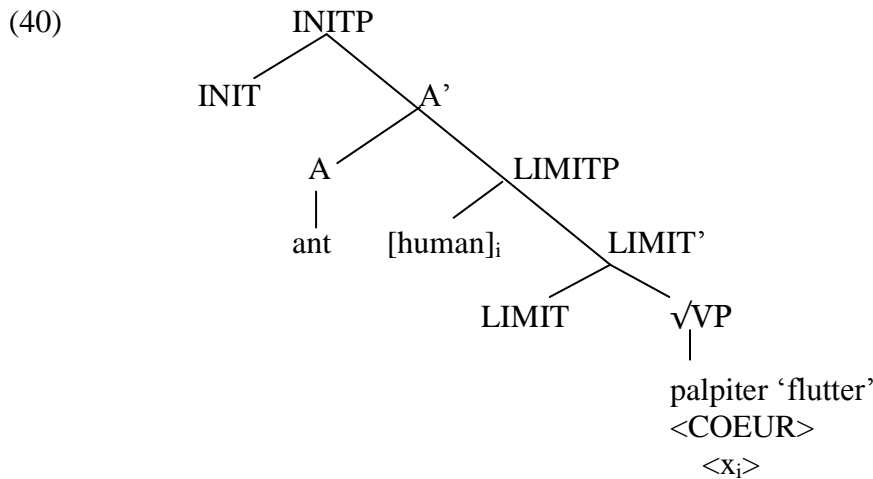


To conclude, *Ving/ant* adjectives, like desideratives, contain an aspectual morpheme INIT, banning a phy reading. That morpheme selects a LIMITP, so it merges with a V which must have an internal argument. English differs from French, where the expression of the DO is not compulsory. I claim that it is because French is not a D-language, for example it does not have the resultative construction, which is symptomatic of D-languages.

The experiencer reading is that of the internal subject position, which may be an argument of the embedded verb (external argument with *turn pages* or *bite one’s nails* (39a)), or a human feature coindexed with an argument inside the subevent which can be the possessor of a body-part (*drop x’s jaw* (39b)), or the internalized argument of slang bases (*marrant* (35)).

10. Analysis of *palpitant*

Let us go back to the adjective *palpitant* ‘pounding’ of (2b). It is not slang, so it is a counterexample to the requirement on slang. In Italian *battere* takes *essere* (*il cuore e batte forte* ‘the heart has beaten hard’), in English *flutter* is uncomfortable with the fake reflexive (*her heart fluttered (*itself) to a frenzy*), suggesting that *palpiter* ‘flutter’ is basically unaccusative and is thus a good candidate to function as a phy root. *Palpiter* is particular because it applies almost exclusively to the heart. This strong link can be observed in the colloquial coinage for the heart, *le palpitant* ‘the ticker’. I suggest that the meaning ‘heart’ can be inscribed in the meaning of the verb, in the same way that prototypical complements of verbs like *read* and *eat* can, allowing them to omit their complement in syntax (*he’s eating* means ‘he’s eating food’). That body-part is inscribed in the theta-grid of the verb, and it helps the construction of the experiencer, forming *palpitant*:



This respects all conditions. The aspectual head INIT takes an unaccusative complement, *palpiter*, which does not have to be slang in order to have an internal argument, since its argument is already internal. Second, even if the argument of *palpiter* cannot be expressed because French has no Germanic compounds (**coeur-palpitant* ‘heart-fluttering’) – and does not have to, since French is not a D-language – it is contained in the meaning of the verb. Being a relational N, it has an argument x_i which provides the experiencer interpretation via coindexing with the human feature in Spec,LIMITP, similarly to the English adjectives that require a body-part like *jaw-dropping*.

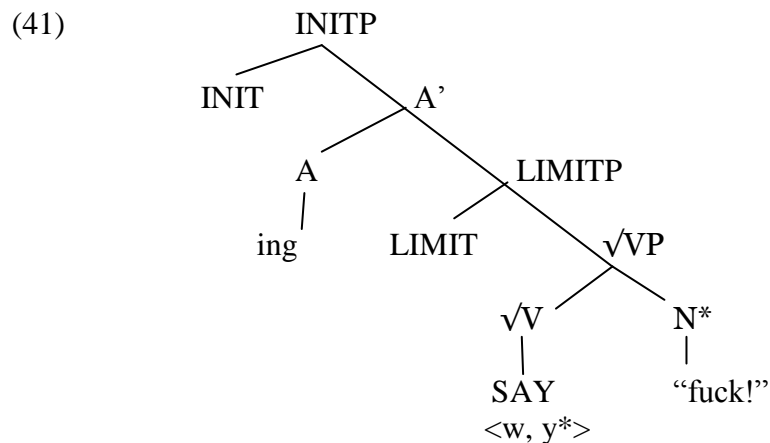
11. Analysis of *fucking*

There is another type of construct which is causative whereas the base element is not causative, the class of vulgar *effing*-adjectives. On the surface of things, such adjectives are formed on an exclamation, not a V like the others, so they are produced by what has been labelled “delocutive derivations” (see Benveniste 1966 and de Cornulier 1976). Benveniste discovered the phenomenon of delocution, in which an interjection like “*thanks*” is used as a base in words, as with *to thank*. Fradin’s (2002)’s analysis of *vachement* ‘very much’ in French has nourished the present analysis of *effing*-adjectives. The French suffix *-ment* is the equivalent of *-ly*, it attaches to adjectives and forms manner adverbs which paraphrase as ‘in an Adj way’. In the case of *vachement*, it does not attach to an adjective, but to an exclamation which is uttered under strong emotion, “*la vache!*”, literally ‘the cow’, but still it produces a manner adverb; it means ‘to such an extent that I exclaim “*la vache!*”’, namely ‘very much’. I suggest that the same happens with *effing* adjectives, they mean ‘such that it makes me exclaim “*fuck!*”’, *me* the speaker. These adjectives are plugged in syntax in a

position that allows them to apply to the phrase that names the cause of the emotion which triggers the exclaiming event, such as a thing, for instance a car in *a fucking car*, which is a car that makes me say “fuck!”, or the utterance situation itself, as in *Why don’t you get a fucking job?* In this article, I analyze their morphological formation and leave out the account of their scope.

It is clear from the meaning of *fucking*, that it is a psych adjective based on words naming the irrepressible physical reaction to some psychological cause, here something that causes a strong emotion, first because swearing is one of the canonical immediate reactions triggered by a strong emotion, and second because swearing is a physical process. So the adjective *fucking* belongs to the *nail-biting* class, even if it does not look like it because it has no apparent V and no body-part. I now show that it also has the form of that class, namely DO-Ving, the only one permitted in English, as seen in section 9.

In early generative grammar, Banfield (1973) claimed that utterances were complements of silent verbs of discourse. Suppose sentences are embedded under an unpronounced main clause containing a representation of parameters of the utterance situation, such as the speaker, the hearer, and the verb that introduces the utterance, as in the analysis of *the hell* in Haik (2012). This means that there is a silent verb of utterance, SAY, that the adjective *fucking* has that verb as its root and that “fuck!” is its complement, much as *nail* is the complement of *bite* in *nail-biting*. So these adjectives have the following structure:



This construct obeys all conditions. The affix takes a LIMITP which is a grammatical event because it has a DO, the exclamation. It has a covert but real V, and it has an experiencer, the external argument of that hypothesized V.

12. Conclusion

ObjExp predicates have often been defined in function of their psych roots. In this article, ObjExp predicates are characterized as having a mental trigger, not only with a psych root but also with a phy one. Physical actions that are represented linguistically as psychological effects are effects of emotions, illustrated in *Ving/Vant* adjectives like *marrant* and *jaw-dropping*, of percepts, illustrated in *Ving* adjectives like *mouth-watering*, and of impulses, illustrated in clauses in Finnish, Albanian, Slovenian and other languages.

The *Ving/ant* adjectives we have studied are ObjExp predicates with a phy root where the affixes are aspectual and introduce an initiator, yielding the unexpected causative meaning of the adjectives. Because English is a D-language, one condition on *-ing*, but not *-ant*, is that it must form a grammatical event, namely an event with a delimiter, which explains the necessary presence of a DO inside the adjective, as in *nail-biting*, even if the DO is semantically recoverable from the verb, as in **pounding*. The experiencer argument can be

either the external argument of the subevent or the possessor of a body-part mentioned in the subevent, yielding the two types of subevents in English, either transitive ones, like *turn pages*, or gestures and other physical reactions, like *drop jaw*.

This article provides an analysis of *effing*-adjectives, which do not look like compounds but in fact are N-Ving compounds, with a silent verb SAY whose direct object is the exclamation and whose external argument is the experiencer of the whole structure.

We have seen that, in French, certain intransitive verbs naming bodily actions with a human subject may be treated as unaccusatives in the formation of *-ant* adjectives on the condition that they belong to a substandard register, producing psych adjectives like *marrant*.

ObjExp constructions may also be formed in syntax. Finnish, Albanian and other grammars may express the mental state that causally precedes an act, the state of feeling an urge to do that act. That state can have a cause, but the Cause DP cannot appear in the subject position of the clause, which may only be filled by a silent expletive.

We have often compared phrases and words, confirming two main differences often encountered in work on morphology, like the canonicity constraint and the possibility for a word to leave out arguments.

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