

Phy-inside-psych adjectives

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Abstract

Object Experiencer verbs (ObjExpVs), like *amuse*, are causative predicates formed on a V naming an emotion (Ruwet 1991, Pesetsky 1995), here amusement. Others are physical verbs with a metaphoric meaning, like *touch*, naming the sensation produced by a psychological cause through the similarity with the physical action. but in reality no physical effect takes place. Both types of ObjExpVs can form *Ving* adjectives in English and *Vant* adjectives in French, such as *amusing/amusant* and *touching/touchant*. Conversely, there are certain *Ving/ant* adjectives that have an ObjExp reading without originating from a psych verb, such as *jaw-dropping* 'surprising' in English and *marrant* 'amusing' in French. It is a fact of human nature that emotions trigger certain physical effects. The verbs of such adjectives name the real physical effect of the psych cause. This article claims that, provided that the individual grammatical conditions of the language are respected, the language can display grammatical constructs of that form, namely, a psych construct with an embedded V naming the physical effect triggered by the psych cause, a phy-inside-psych construct.

1. Introduction¹

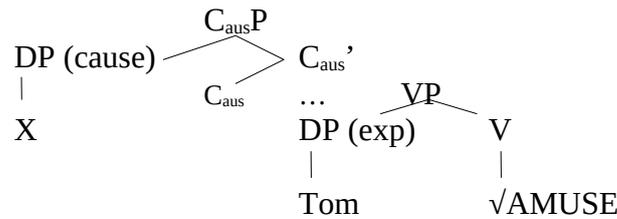
This article examines a specific Object Experiencer (henceforth ObjExp) causative psych construct, regular across languages, where the caused subevent is not headed by a psych root but by a phy(sical) verb. The construct can be nominal, like *page-turner*, clausal (fn. 3) and adjectival, like the *Ving* and *Vant* adjectives of English and French studied here.

As observed by Brekke (1988), most *Ving/ant* adjectives are formed on ObjExpVerbs, i.e. causative verbs with an inner Experiencer like *amuse*. With those adjectives, the predicated XP corresponds to the subject of the verb: *amusing* means 'which amuses one'. However, certain *Ving* and *Vant* adjectives like *jaw-dropping* do not apply to the subject of the V and the V is not an ObjExpV, but those adjectives have the ObjExp meaning. Such $[[V_{\text{phy}}]ing]_{\text{psychA}}$ phy-inside-psych constructs are causative while the V is not. About something, they mean 'which causes the typical physical effect triggered by the emotion or sensation which that thing causes' and not 'which Vs': *jaw-dropping* means 'that causes one's jaw to drop', not 'that drops one's jaw', and, importantly, they must be psych, thus *jaw-dropping* means 'surprising' and not 'heavy' or any physical quality of a blow or drug, etc. which causes one's jaw to drop. This class should not be confused with that in which the V has already taken on a psych meaning like *touch*, which forms regular *Ving* adjectives like *touching* (see Ruwet 1991 and 1994 for revealing analyses of psych constructions and similarly Bouchard 1995).

I assume that ObjExpVs as in *X amused Tom* have the following schematic form, inspired by Pesetsky (1995). I mention the external argument as the cause, the caused eventuality as the subevent, and the inner subject as the experiencer. The \sqrt{AMUSE} verbal root internally Merges with C_{aus} , where C_{aus} is some causative morpheme. The link between C_{aus} and the subevent will be discussed later.

¹ Lots of thanks to members of CRISCO and anonymous reviewers for their relevant remarks.

(1)



This article claims that a phy(sical) V instead of the psych root can head the subevent, producing a construct expressing compositionally the instant physical effect of a mental trigger.

Let us first highlight the specific properties of the relevant *Vant* and *Ving* adjectives.

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

Here are the most usual French *Vant* adjectives which do not paraphrase as ‘which Vs’ but as ‘which makes one V’ with an obligatory psych meaning (‘funny’, ‘annoying,’ etc.). The V expresses a physical action (or a sensation, like pleasure with *kiffer*). I give their literal, physical, translation in parentheses, and their actual meaning between quotation marks. Next to the adjective is the V with its meaning. The form is productive (cf. recent *kiffant*).

- (2) a. **1. bandante** (lit. ‘that makes one have a hard-on’): ‘sexy’ (*bander* ‘have a hard-on’) **2. 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’) **3. chiant** (lit. ‘that makes one shit’): ‘annoying, boring’ (*chier* ‘shit’). **4. craquant** (lit. ‘that makes one crack’): ‘irresistible (person)’ (*craquer* ‘crack’) **5. flashant** (lit. ‘that makes one flash’): ‘very appealing’ (*flasher* ‘be struck’) **6. gerbant** (lit. ‘that makes one puke’): ‘revolting’ (*gerber* ‘puke’) **7. kiffant** (lit. ‘that gives one pleasure’): ‘very pleasant’ (*kiffer* ‘feel pleasure’) **8. marrant** (lit. ‘that makes one laugh’): ‘funny’ (*se marrer* ‘laugh’) **9. planant** (lit. ‘that makes one glide’): ‘that makes one feel as when gliding’ (*planer* ‘glide’) **10. poilant** (lit. ‘that makes one laugh’): ‘very funny’ (*se poiler* ‘laugh’) (*s’arracher le poil* ‘pluck one’s hair’ (*poil* ‘hair’)) **11. rageant** (lit. ‘that makes one rage’): ‘infuriating’ (*rage* ‘be in a rage’) **12. râlant** (lit. ‘that makes one moan’): ‘infuriating’ (*râler* ‘moan’) **13. roulant**: 19th C (lit. ‘that makes one roll’): ‘very funny’ (*rouler* ‘roll’) **14. suant** (lit. ‘that makes one sweat’): ‘very annoying’ (*suer* ‘sweat’) **15. tordant** (lit. ‘that makes one double up’): ‘very funny’ (*se tordre (de rire)*) lit. ‘twist (with laughter)’ **16. 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) flutter’): ‘thrilling’ (*palpiter* ‘flutter’)

These adjectives have two main properties, explained respectively in sections 3 and 5:

- (3) a. The adjectives can only qualify psychological causes, excluding physical ones.
b. In the (2a) class, the verbs must be slang or colloquial.

As for the first observation, those adjectives can only apply to psychological causes. We see in (4) that, even if these uncontrollable organic reactions can have physical causes, like a medical treatment, temperature, etc., none of the adjectives can be predicated of such causes. The stars below indicate that the phy reading is rejected. Some of these sentences may have a psych reading, for example, (4a) can be read as ‘the scene of people laughing after inhaling laughing gas is funny’ but that is not relevant.

- (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 craquante.
'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.'
- f. Se retrouver là, c'était trippant/*L'Ecstasy est trippante.
'Finding myself there, that made me go on a trip'/*E. makes you 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 piece of 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.'

We observe that the cause produces an emotion and emotions cause certain characteristic physical reactions. Those adjectives qualify a psych cause in a structure that makes it the cause of that canonical physical effect. In those French adjectives, the verbs express organic irrepressible reactions (overstated with *chiant*). The phy reaction is always one of the canonical reactions to the emotion, which shows that the adjectives respect the canonicity requirement on word-formation (Green 1974, Kiparski 1997, Rimell 2012; Harley 2008 for discussion), where formative elements of a word must be in a stereotypical relation. For instance, the V *saddle* which must refer to the typical use of a saddle (N), that is, mounting an animal.²

2 The canonicity requirement could be dispensed with, or rather expressed elsewhere, if one analyzed the relation between the psych cause and the physical effect as a case of a metonymic reading of the physical effect, with the metonymy allowing one to name a physical effect to refer to the emotion that typically causes it. In that case, the adjectives would be regular psych verbs, a psych cause causing an emotion, with the particular grammatical fact that the emotion would be named metonymically by its (or one of its) typical physical effects. Metonymy is often referred to by Ruwet (1994) in similar cases. In the present article, the psych reading of the cause is mainly provided by the fact that it is not a physical cause, and that, in our world, originators which are not physical are psychological. And psych causes are emotional triggers, sensory affects and intentions. An anonymous reviewer suggests that the psych reading of the cause could be obtained by implicature

As for the observation in (3b), apart from (2b) *palpiter* discussed in section 7, and *haleter* (note 2), all the verbs are slang or colloquial. Standard verbs give bad results: **riant* ‘laughing’, **transpirant* ‘sweating’, **vomissant* ‘vomiting’ etc., which will be accounted for in section 5. But not all slang verbs can form a *Vant* adjective, like **dégobillant* (lit. ‘puke-ing’), so (3b) is a necessary but not sufficient condition, something that I will not explain.³

Let us turn to English. Below are the adjectives, in bold for clarity. To avoid ambiguity with *Ving* nominals, the adjectives are intensified, coordinated with another adjective, or predicative. The form is productive. The data is from the internet:

- (5) a. Other people find your condition as thrilling and **eye-watering** as you do
(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. 10 most **head-scratching** lyrics from ‘Yeezus’
(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 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’

As in French, the cause triggers an emotion that has the typical phy effect named by the V. That effect can be an organic process (*heart-thumping*) or a compulsive (*turn pages, scratch*

stemming from the non physical nature of the cause: if a body is affected, but not by a physical cause, then the only other reasonable cause is psychological. My account too opposes psych and phy causes pairwise but it does not rely on implicit semantic links, it is fully compositional, where grammatically (syntactically and semantically) present morphemes as well as their position in the structure provide the interpretation.

³ *Désopilant* ‘hilarious’ is not slang but the 16th C verb *despoiler* ‘clear’ was causative, so it is regular, ‘which clears (one’s spleen)’ (cf. www.cnrtl.fr/etymologie/d%C3%A9sopilant). Non slang *haletant* (lit. ‘panting’) ‘suspenseful’ is a true exception. As for *hallucinant* ‘incredible’, it seems to come from the colloquial expression *j’hallucine* ‘I’m hallucinating’, in which case it is regular. And *suer* ‘sweat’ is not slang but the causative correlate of the adjective *ça fait suer*, lit. ‘that makes (me) sweat’ = ‘that pisses me off’ is, so the verb *suer* is certainly colloquial in psych expressions. *Salivant* ‘that makes one salivate’ as in *odeur salivante* ‘salivating smell’ is isolated in French because it is not slang and the cause is a stimulus, as in English.

An anonymous reviewer suggests that slang can be seen as a sign of lexicalization of the adjectives, meaning that the formation is expected to show some idiosyncrasies. I have attempted to give the construct a fully compositional account, in which being slang provides a verb with a grammatical possibility that its standard synonyms do not have, but I grant that my general analysis accounts well for attested adjectives, but it cannot explain why the construction is not totally productive. For instance why **chialant* ‘lit: crying’ = ‘sad’ is not a proper adjective is a yet unsolved mystery to me.

head, bite nails) or involuntary (*jaw-dropping*) action, all the typical physical instant responses to the emotions.

Now, mental processes other than emotions have an immediate impact on the body, and such a causal relation is actually used in phy-inside-psych constructs. English adjectives include stimuli as causes and clauses in some languages include impulses.⁴ Stimuli that provoke immediate physical reactions on perception, like rhythm, smell, taste, and pain can be the causes of *Ving* adjectives:

- (6) ?a rather foot-stomping song
- (7) a. They emitted a nose wrinkling, noxious, stench (internet)/a pungent, nose-wrinkling, stench (internet)
b. a rather mouth-watering smell
- (8) ?a rather head-spinning/?teeth-clenching pain

As we see, the English class has different internal properties than the French ones: the verbs need not be substandard, they cannot be intransitive (**quite a sweating adventure*; cf. (27a)), and they can be agentive (*turn pages, bite nails*).⁵ They are analyzed in section 6.

After having introduced the adjectives in the two languages, let us consider their shared properties, listed in (9), illustrated in (4) and (10)-(11) and explained next:⁶

- (9) 1. *Ving/ant* adjectives cannot have a phy meaning (cf. (4) and (11)).
2. The clausal counterparts of the *Ving/ant* adjectives are ill-formed (cf. (10a-b)).
- (10) a. Une musique planante vs. *Cette musique plane. (with the psych meaning)
'Gliding music' vs. *'That music glides.'
- b. A jaw-dropping story vs. *The story dropped his jaw.
- (11) *Such a heart-stopping pill, *such a jaw-dropping puff of air, etc.

4 Impulse, a sudden intention, is another mental trigger of physical action. In Haik (2017), the state of the mind prior to the action is named in some languages in clauses with the phy-inside-psych ObjExp structure, like 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 some Slavic languages (Marušič and Žaucer 2006; Ilic 2013) and the Impulsive in Cusco Quechua (Cathcart 2010). Those clauses all have the ObjExp structure of the language, with a phy subevent.

5 *Page-turner*, etc. are similar phy-in-psych nouns, mentioned in McIntyre (2014:3).

6 An anonymous reviewer objects that there are lots of clausal counterparts to (10b):

- (i) This will turn heads/drop jaws/raise hairs/stop hearts/spin heads, in the government. Such clauses seem to be restricted to an adjectival meaning. First, they have an N-*Ving* adjectival correlate and if a potential adjective sounds bad, like **shoulder-shrugging*, the clause is bad too, like (ii). Second, the experiencer's identity cannot be named, as in (iii):
- (ii) *Such a bad idea will simply shrug lots of shoulders.
- (iii) *Such results at the poll will drop the Prime Minister's jaw.

Moreover, the verbs in the phrasal counterparts are those whose physical counterpart participates in the causative alternation, like *turn, drop*, etc., to be compared with, say, *clench*:

- (iii) *This will clench jaws.

Lastly, no clausal counterparts are possible in French (cf. (10a)). All this suggests that (i) forms a circumscribed exception to statement (9.2), which remains to be worked out.

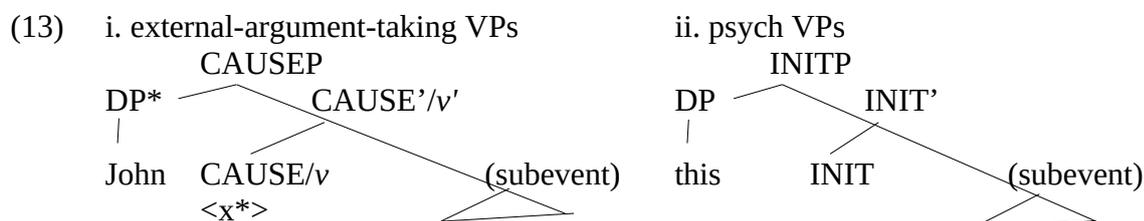
3. Why psych and not phy readings and why no clausal counterparts

To explain (9.1), we need to distinguish psych predicates from others. According to Grimshaw (1992), a psych cause is not primarily an argument of its verb but an aspectual element, contrary to other external arguments, which are primarily semantic arguments of their predicates, and secondarily aspectual. “Aspectual” refers to the shape of an event in terms of its initiation, its course and its end. In the spirit of Grimshaw (1992) (see also Pylkkänen 2000a), I will assume that if a cause is not psychological, it is an argument of some overt or covert lexical head, and if it is psych, it is introduced only by Aspect.

In French and English, subject psych causes are the subjects of *amuse/amusing*-type predicates and of the *Ving/ant* adjectives under study. Those must be distinguished from all other external arguments. *Amuse*-type V_s are made of a causative morpheme selecting a verbal psych root (Pesetsky 1995). Let us assume that this morpheme is INIT, the aspectual head that introduces the initiator of an event (van Voorst 1988). And let us assume that all other external arguments are selected by lexical heads, like Kratzer (1996)’s *v* which introduces the external argument or CAUSE of the transitive verbs of the causative alternation (Levin and Rappaport 1995 and others) or non dynamic V_s themselves. This yields complementarity:

- (12) a. External arguments are arguments of lexical heads.
 b. Psych causes are only introduced by the functional aspectual marker INIT, in Spec, INITP.

(12a) does not mean that an external argument is not aspectually interpreted. It is, in addition to its semantic relation with its predicate. In some theories that represent Aspect syntactically, like Ritter and Rosen (2000), an aspectual layer above the VP holds aspectual information and eventually, after internal Merge, Spec, INITP will host the initiator of the event. In frameworks like Ramchand (2008)’s l(lexical)-syntax, or Borer (1994) and others, the aspectual interpretation is read off directly from the VP with the three subevents that can compose an event, the initiation part with its initiator, the process-part with its undergoer and the result part with its delimiter, so that dynamic subjects are interpreted as initiators from their position of specifiers of dynamic predicates (*v*, CAUSE). The present account is compatible with both, in so far as the ordinary external argument is lexically licensed in addition to being an initiator, while a psych cause is only aspectually licensed. This difference is represented in the two distinct higher-VP-structures below. From now on, I indicate saturation with a star on the argument-place of the theta-grid:



Next, we saw in (10a-b) that the *Ving* adjectives do not have clausal counterparts. If (10a-b) were to be psych, the causer should be aspectually licensed, namely only introduced by INIT. But there is no INIT head in the verbal structures of the clauses of (10a-b) because INIT does not come freely, it is either specified in the composition of ObjExpV_s like *amuse* – and phy verbs are not psych roots – or expressed by a dedicated morpheme like *-ing*, as we shortly see. In other words, in (10b), it is impossible to introduce the initiator by INIT in the VP structure

of clauses. The other way for the subject of (10a-b) to have an initiator interpretation is for it to be lexically licensed by *v* or CAUSE, as in (13a), but then it cannot be psych, by (12).

I have just implied that the *-ing/-ant* morphemes play a crucial role in the *Ving/ant* adjectives. That is so if we assume that those suffixes are overt realizations of the aspectual INIT marker. Let us see how this works, first in regular *Ving/ant* adjectives.

4. Analysis of *-ing* and *-ant* with ObjExpVs

I will work with the hypothesis that deverbal words inherit the argument properties of the V:

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

The reason for (14c-d) is illustrated in Kayne's famous examples, which show that nouns can leave out arguments, as in (15c), but only once the lower ones have Merged, ruling (15a) out because it skips the saturation of the internal argument-place:

- (15) 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 (14d) is that words may leave out arguments but not clauses, as shown here:

- (16) a. This jump was extraordinary. (*jump* <Ag> unsaturated)
b. *There/it jumped. (*jump* <Ag> unsaturated)

I follow Dowty (1979), Tenny (1994; 1995), van Voorst (1988) Borer (1994), Ritter and Rosen (2000), Travis (2000), Ramchand (2008), Arad (1998) and others in the idea that Aspect governs and constrains, perhaps only partially, the syntactic positions of arguments. Moreover, Grimshaw (1992), Ritter and Rosen (1997 and 2000), Tenny (1995), Guéron (1995), Bailleul (2013) and others, discuss whether it is possible for certain arguments to be licensed by Aspect without being arguments of any lexical head, which for example Ritter and Rosen (1997) claim for the subject of *have*. That is what is assumed here, where the psych-cause subjects of ObjExp constructions are only aspectually licensed (cf. (12b)).

Consider regular adjectives like *amusing/amusant*. Suffixes are heads of words (Williams 1981) which project a category name and a word, X° . Here, *-ing* and *-ant* project A. Let us assume that they are INIT heads introducing the initiator of the subevent, in Spec, INITP, and that the psych root has only one argument, the Experiencer and not the cause. The latter hypothesis explains two properties. First, it implies that the initiator is not an argument of the root, so the initiator is only aspectually licensed, hence it can only be a psych cause, by (12b), which properly excludes psych readings for *-ing* adjectives, as in **a touching leave*, **a breaking hammer*, etc., a good result. Second, that hypothesis explains why *amusing*-type adjectives do not violate the requirement on incremental compositionality (14c), even if the cause (higher element) Merges and not the Experiencer (lower one), because, given that they are introduced by different heads – the cause by INIT, the Experiencer by the verb – the verb does not have these two arguments and incremental compositionality applies to it vacuously.

Let us now consider the form of the subevent that *-ing* and *-ant* select. Anticipating on the role of slang in French and the obligatory presence of the DO (direct object) in English, there are reasons to think that *-ing/-ant* select the verbal structure that introduces a direct internal argument, a crucial hypothesis in the account of these adjectives. A direct internal argument is either the internal Experiencer of an ObjExpV like *amuse*, or the ordinary DO of an unaccusative or transitive verb. As argued in Tenny (1987), an internal argument is an event-measurer. For instance, the temporal course of the event named by *push a cart* is evaluated with respect to the scale provided by the location of the cart (Tenny 1987:151). As for Experiencers, she shows that the internal Experiencer measures out the event, as opposed to the external argument in (17a), and as opposed to the external Experiencer of *love*-type verbs in (17b). In (17a), the amount of the audience (internal Experiencer) maps onto the temporal course of the event, and not the amount of the play (external argument), and conversely in (17b):

- (17) a. The play moved the audience quickly, moving a lot of the audience at once/*a lot of the play moving the audience at once.
(Tenny 1987 (42):292)
- b. ?After the first two minutes of the play the audience knew the outcome halfway; the audience knew half the outcome/*half of the audience knew the outcome.
(Tenny 1987 (41):292)

Returning to *-ing* and *-ant* in English and French, those affixes select a subevent that is measured-out, namely, they require a substructure which introduces an event measurer, i.e. a direct argument. In Ritter and Rosen (2000), the part in the aspectual composition of an event that expresses the event-measurer is DELIMITP (see Ramchand 2008 and others for slightly differing aspectual systems). So, *-ing/-ant* select DELIMITP.

Note that not all direct internal arguments are delimiters, though they all provide a scale on which to measure out the event. For Ritter and Rosen (2000), if a DO, like a mass noun, does not provide the limit of the event, as in *John [DELIMIT [ate pizza]_{VP}]_{DELIMITP}*, it does not move from its initial sister-to-V position to Spec, DELIMITP, and if it delimits it, as in *John ate a piece of pizza*, it moves to Spec, DELIMITP; but in both clauses the DO measures out the event. In section 6 we will see that the obligatory expression of the DO in the English adjectives follows from Ritter and Rosen (2000).

As for the two types of internal arguments, I assume that DOs and DPs interpreted as experiencers do not Merge in the same position. A DO is a sister to V as in Ritter and Rosen (2000) and an inner experiencer is a subject, yielding two different DELIMITP-structures of (19a-b).⁷ To sum up:

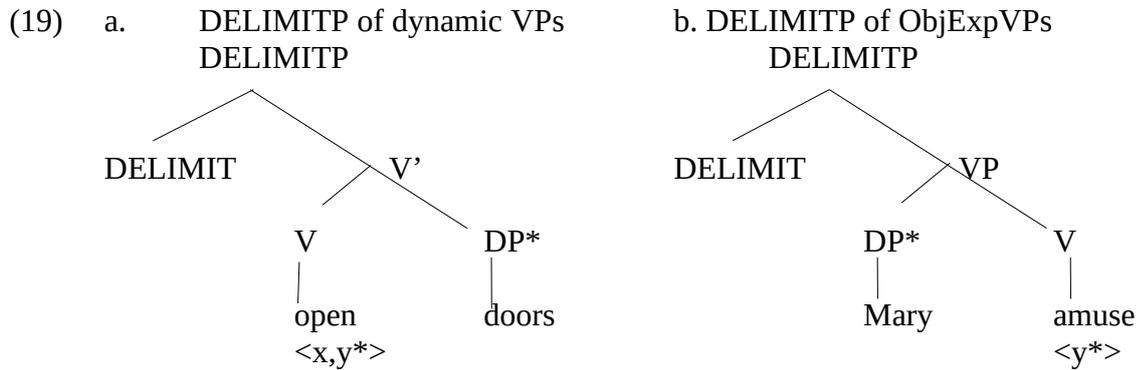
- (18) a. *-ing* and *-ant* are INIT heads that directly select DELIMITP.
b. DELIMIT directly selects a V with an event measurer, namely either a psych root or a transitive or unaccusative V.

⁷ Experiencers as inner subjects in causative constructs (Pesetsky 1995) is revealed by the unexpressed argument in (ii) (Rizzi 1986), always an Experiencer, as (i) shows (Haik (2005):

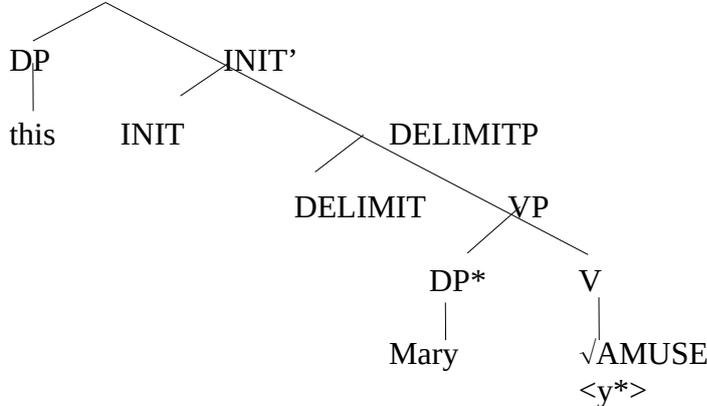
- (i) La musique, ça attriste - . vs. *La musique, ça infiltre - .
Music, that saddens (one). ‘Music, that seeps into (things).’
(ii) La musique, ça rend – fou/ ça fait – pleurer/ ça met – de bonne humeur.
‘Music, that drives (one) mad/that makes (one) cry/that puts (one) in a good mood.’

Experiencers can also be datives, selected by a silent or overt locative P (Landau (2010).

c. X is interpreted as an experiencer if it is the subject of a psych event, such as the subject of *love*-type verbs and the subject of a psychologically caused subevent.

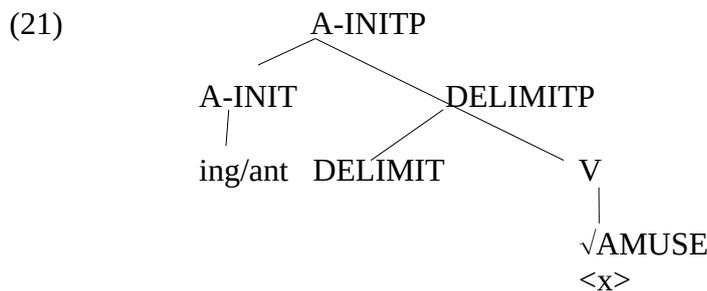


(20) Full ObjExp verbal structure, before \sqrt{AMUSE} Merges with INIT
 INITP



Note that the root can Merge to INIT even if it crosses over the Experiencer, without violating Travis's (19984) locality condition on head-to-head movement, which prevents skipping another head, since the Experiencer is a full phrase, not a head.

Now consider the adjectives based on the ObjExpVs of (20), recalling that *-ing* is specified to select DELIMITP:



In this structure, internal Merge of \sqrt{AMUSE} with *-ing* is possible because external Merge of the Experiencer in Spec, VP has not occurred. Otherwise, adjectives are ill-formed: **(very) kid-amusing*. That is because if the Experiencer Merges in Spec, VP, subsequent Merge of \sqrt{AMUSE} with *-ing* is blocked by the presence of that overt head, by Travis's (1984) constraint. So, the only derivation that works is the one that skips the saturation stage of the Experiencer of \sqrt{AMUSE} , as in (21). Given that (21) is a word, the root does not have to

saturate it. When the word *amusing* mutually c-commands some XP, XP is in a Spec-like relation with INIT and thus identified as the initiator of the subevent, a psych cause by (12b).

Let us now turn to phy-inside-psych adjectives in French, then English.

5. Analysis of *marrant*

By (18a), *-ant* selects DELIMITP, the aspectual part that introduces an internal argument. But consider the (2a) organic-action class of phy verbs that head the subevents:

- (22) *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’

Craquer ‘break’ is the only unaccusative. Organic-action verbs are non agentive unergatives, as evidenced by the fact that in Italian they take *avere* and in English they require a fake reflexive in the resultative construction and can occur with *one’s way* or *the time away* (from Jackendoff 1997):

- (23) 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 Levin and Rappaport Hovav (1995); van Voorst (1988), where deep subjects in English name participants that provoke events even without volition; and Dowty (1991), where animacy is a feature of proto(typical)-roles ranking arguments as subjects.

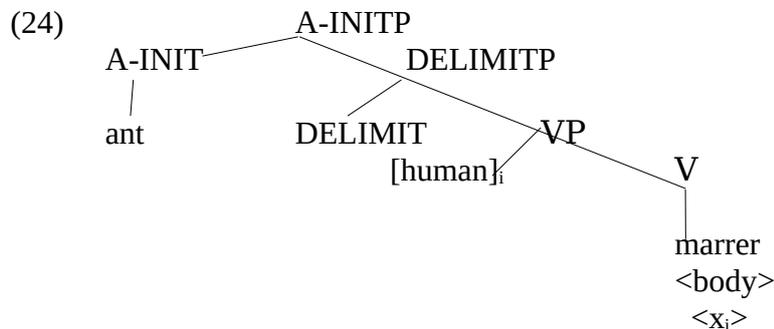
By (18a), *-ant* should select a V with an internal argument, but the (*se*) *marrer* class is unergative. So it must be that such verbs internalize their argument while acquiring an unaccusative meaning. Unaccusatives denote a change of state or motion to a point (Burzio 1986). Since organic-action verbs do not name motion, they must become change-of-state Vs, like *leak*, *freeze*, etc. Those verbs mean that something happens to a body rather than a conscious being. I claim that this happens with organic-action verbs in the adjectives: the human argument is named as a body and as a result the V enters the unaccusative structure.

This shift in the semantics of verbs like (*se*) *marrer* must be constrained, which will explain why those verbs must be substandard. Treating a human being as a body is a debasing process, and it is iconicity between linguistic form and meaning that allows this shift from unergativity to unaccusativity. A linguistic form is iconic if a property of its physical form illustrates an aspect of its meaning. For instance, a spoken word like *nice* with added stress on it bears physical emphasis which illustrates ‘emphasis’ (namely, ‘very’) in its meaning. Here, bad and improper register illustrates bad and improper treatment of a participant.

So, a usually unergative verb like (*se*) *marrer* is unaccusative because its human argument refers to that human’s body, which is possible because it is colloquial. Technically, the verbs in the (*se*) *marrer*-class encode ‘body (x)’ in their theta-grids, where x is the inherent possessor of the relational noun *body*. In turn, this answers a question.

In the whole psych event (finding something funny), the human being, not their body, is the relevant participant. So, the ‘experiencer’ meaning has to be encoded somewhere. If it is right that semantic roles are assigned to some dedicated syntactic positions (Baker’s 1985 UTAH), then the experiencer must be found in the subject position of the caused subevent, from (18c). I assume that an unchecked semantic [human] feature freely merges in Spec, VP and that coindexing with a human argument, such as the possessor of *body* is a licit way to check it. Note that this feature does not block internal Merge of the V with *-ant*, since it is not

overt. Below, (*se*) *marrer* is a V with an internal implicit argument naming a human's body. That *body* argument takes a possessor argument and that possessor checks $[\text{human}]_i$ which is interpreted as an experiencer because it occupies the inner-subject position of a psychologically caused event:



The construct compositionally reads as: a mental cause (named in Spec, INITP) has the effect (named by DELIMITP) mentally affecting a human experiencer (named by $[\text{human}]_i$ in Spec, VP) whose body (named by *body* (x_i)) undergoes the physical action named by the VP.

6. Analysis of *jaw-dropping*

Here are the internal properties of the English adjectives that we are going to discuss:

- (25) a. The adjectives must be N-Ving compounds, in which N is the DO of the V.
 b. If V is unaccusative, N must name a body-part. If V is transitive, N is free.

DO-V compounds as in (26) are fine, and simple adjectives as in (27a-b) are ruled out:⁸

(26) eye-raising, foot-stumping, head-scratching/spinning, heart-pounding /stopping/etc., jaw-dropping, nail-biting, nose-wrinkling, page-turning, teeth-clenching, etc.

- (27) a. *laughing 'funny,' *sweating 'annoying' (unergative Vs, no DO)
 b. *thumping/*biting 'suspenseful' (non-compounds, with Vs with a DO)

(18a) requires the subevent to have an internal argument, whether the V is unaccusative (*jaw-dropping*) or transitive (*page-turning*), so it automatically excludes unergative Vs as in (27a).

All the Ns of such adjectival compounds can be analyzed as the internal arguments of those verbs, even with *race* (*heart-racing*), which can be unaccusative or unergative, as shown by the dual behaviour of the reflexive in the resultative construction:

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

(27) shows that the expression of the DO is obligatory. Ritter and Rosen (2000) can explain why DOs are required in a structure. For them, there are two kinds of languages with respect to the grammatical expression of events, those that have requirements on the event endpoint and those on the initiation. English is a D(eliminating)-language, as shown by the various expressions referring to endpoints, like particles and resultative constructions. They claim that INITP is interpretable only if DELIMITP is activated, i.e. if a DO lands in Spec, DELIMITP:

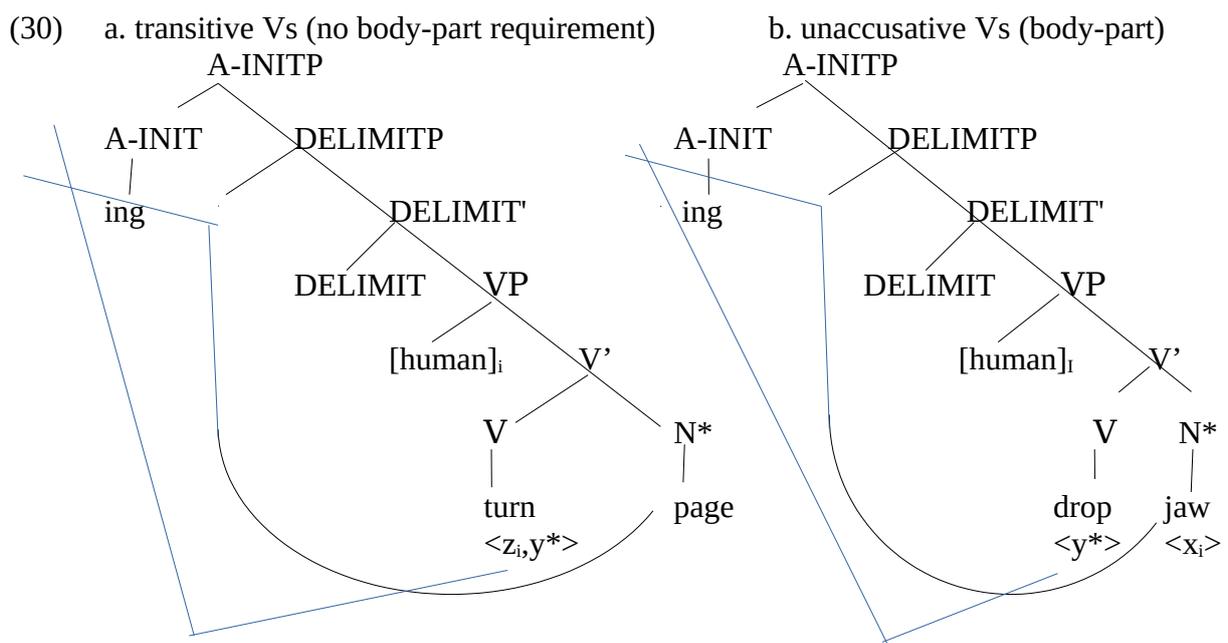
⁸ Non-compounds as in *throbbing/pounding/puls(at)ing pain* seem to violate (29a) but *pain* corresponds to the subject: 'pain that throbs/pounds/puls(at)es', so they are not phy-inside-psych constructs. As for *howling/wrinkling/wincing pain*, Ving is certainly an N.

- (29) In a D-language, “events may only include initiation or causation if they also include delimitation.” (Ritter and Rosen 2000:200)

One relevant factor in the *Ving* adjectives is that *-ing* specifies initiation, so it should force delimitation of the subevent, if Ritter and Rosen are right. This means that Spec, INITP must be filled by a DO in the English *-ing* adjectives.

However, as noted by an anonymous reviewer, examining the subevents in the *Ving* adjectives, some have non delimiting DOs, as in the atelic *scratch one’s head*, and they still yield a *Ving* adjective, *head-scratching*, similarly to *heart-pulsing* and *head-spinning*, for example. That means that, if Ritter and Rosen’s principle is to be respected, then, even if some events are not naturally delimited by some given quantity of the DO, the event selected by *-ing* is conceived as delimited by the DO. Semantically, if the DO does not provide a well-defined endpoint, the delimiting reading is tautological: ‘until it stops thumping/spinning, etc.’ for atelic unaccusative events and ‘until it stops being scratched, etc.’ for atelic transitive ones. Syntactically, the DO lands in Spec, DELIMITP by internal Merge from the sister-to-V position, as in (30a-b).

As for property (25b) on the body-part requirement on unaccusative verbs, the same question as in French arises, the answer to which is the same. Such adjectives have a psych cause, so they should have an experiencer, and ‘experiencer’ is the interpretation of the subject of the subevent. Again, a $[\text{human}]_i$ feature in Spec, VP which has to be checked by a human argument provides the experiencer. Transitive verbs as in *turn pages* have an external argument, whose syntactic realization is dedicated to the position occupied by $[\text{human}]_i$, so grammatical coherence requires that argument to check the feature. With unaccusatives like (*jaw*) *drop*, it is the possessor of the body-part through the inalienable-possession relation between the body-part and its possessor, because 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. Coindexing $[\text{human}]_i$ with x_i licenses the $[\text{human}]_i$ feature. Here are the N-*Ving* adjectives. In (30a), the $[\text{human}]_i$ experiencer is identified as z , the external argument of the verb, and in (30b) as the inherent possessor x of the N. In these structures, the V Merges with *-ing*, then the N Merges to Spec, DELIMITP and then to the complex head *V-ing*, yielding *page-turning* in (34a) and *jaw-dropping* in (30b):



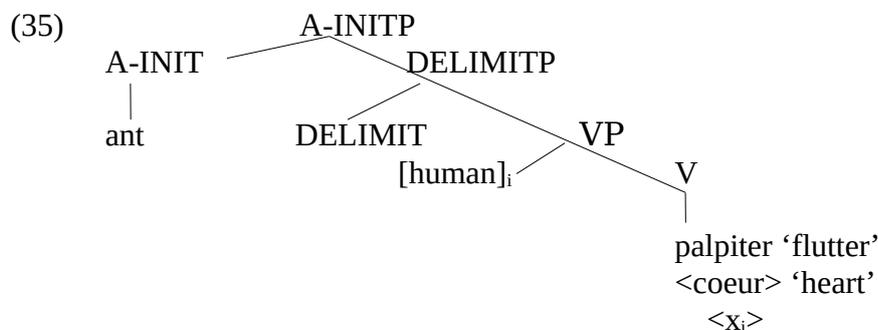
The human feature in Spec, VP, which looks for a checker naming a human participant, explains why most N-*Ving* adjectives are built with body-parts, because those provide good candidates for checking, their possessors. If not, the verbs must be transitive, as in *page-turning* and, as we will see, *effing*-adjectives, because there, it is the external argument of the V that provides the human argument.

In sum, the cause of English and French *Ving/-ant* adjectives is introduced by INIT and no lexical head, banning a phy reading. These affixes select an event that is measured-out, meaning that they select DELIMITP. English is a D-language, and since INIT is specified, the subevent must be delimited by a DO in Spec, DELIMITP, so English adjectives must be overt compounds. Not necessarily so in French, which has no overt compounds. French is not a D-language, for instance it has neither the resultative construction nor particles, so, even if *-ant* introduces an initiator, it does not require delimitation, so no DO in Spec, DELIMITP. In both languages, the experiencer interpretation is borne on a human feature occurring in the inner-subject position and coindexed with the external argument of the V (*turn pages*, *bite one's nails*), or the possessor of a body-part (*drop x's jaw* in English and *V (body (x))* in French (*marrant*)).

Let us complete the French study with the correlate of *heart-thumping*, the (2b) single-membered class, *palpitant*.

7. *Palpitant*: a heart-thumping adjective

Palpiter 'flutter' is not slang, which it does not need to be, because it does not need to internalize its argument since it is already unaccusative: in Italian *battere* takes *essere* (*il cuore e batte forte* 'the heart has beaten hard') and in English *flutter* is fine without the fake reflexive (*her heart fluttered to a frenzy*). *Palpiter* connotes the heart, as can be observed in the colloquial coinage for the heart, *le palpitant* 'the ticker' and in the noun *palpitations*. So, that implicit body-part belongs to the meaning of the verb, and it helps constructing the experiencer via its possessor:



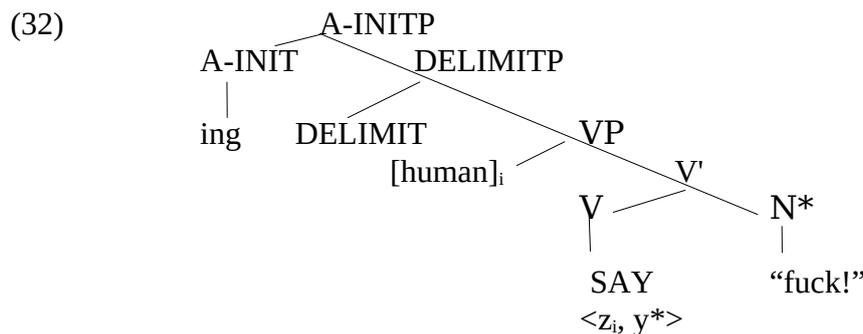
This is a duplicate of *heart-thumping*-like compounds. The verb names a typical organic reaction to a psych cause. INIT takes a standard-register unaccusative V, *palpiter*. Then, even if the argument of *palpiter* cannot be expressed because French does not have synthetic compounds, it is implicit in the meaning of the verb. Being a body-part, its possessor x_i provides the experiencer via coindexing with the human feature in Spec, VP. French not being a D-language, the DO does not have to land in Spec, DELIMITP, so it can stay implicit in the verbal meaning.

8. *Effing*: a nail-biting adjective

This section shows that *effing*-adjectives (*shitting*, *fucking*, etc.) are formally and semantically identical to the phy-inside-psych adjectives studied in the previous sections. They are formed with an overt exclamation, not a V. Benveniste (1966) has called them "delocutive" because

their meaning is based on an utterance, as in *to thank* ‘say “thanks!”’ and by metonymy ‘do the act that is performed when uttering “X”’ (de Cornulier 1976). Fradin (2002)’s analysis of *vachement* ‘extremely’ in French has inspired the present account. Usually, the suffix *-ment*, the counterpart of *-ly*, attaches to adjectives and forms manner adverbs meaning ‘in an Adj way’: *lentement* ‘slowly’ means ‘in a slow manner’. In *vachement*, the overt element is not an adjective but an exclamation caused by strong emotion, “*la vache!*” lit. ‘the cow’, producing an adverb meaning ‘in a way such that I exclaim “*la vache!*”, namely ‘extremely’. This happens too with *effing*-adjectives, which mean ‘such that it makes me exclaim “fuck!”’. *Effing*-adjectives occur in a mutual c-commanding position with the phrase that names the cause of the emotion which triggers the swearing event, such as a thing, as in *a fucking car*, which is a car that makes me say “fuck!”, the utterance situation, as in “*Why don’t you get a fucking job?*” which is a situation that makes me say “fuck!” – in that case, *fucking* takes LF scope like other non-local adjectives (Schwartz 2020) – a property as in *fucking smart* which is a property the extent of which makes me say “fuck!”, etc.

So, *effing* is an adjective based on a word naming the irrepressible physical reaction, here swearing, to some psychological cause, here a strong emotion. So, it conforms to the semantics of phy-inside-psych constructs. It can be argued that it has the compound-form of the English adjectives studied here and is no exception to the DO-V-*ing* form: Banfield (1973) claimed that utterances are objects of silent verbs of discourse (cf. the account of *the hell* in Haïk 2012). Since “*fuck!*” is an utterance, it is the object of an utterance verb in the adjective: silent SAY. And “*fuck!*” is its DO, like *nail* is the DO of *bite* in *nail-biting*:



9. Conclusion

ObjExp predicates have been defined in the literature as having psych roots. Here, ObjExp constructs are defined through their cause, a mental trigger. Such causes can have physical effects, so certain subevents of psych constructs can be headed by phy verbs. The properties of the *Ving/ant* adjectives we have studied are explained by two hypotheses: first, the affixes are aspectual heads that introduce an initiator and second, they select the subevent which introduces an event-measurer, namely, an internal argument. Given that they specify initiation and given that English is a D-language, the subevent must be delimited in English, forcing the expression of the DO (in Spec, DELIMITP), which explains why the English adjectives are overt compounds, ruling out **raising* or **laughing*, even if the DO is semantically recoverable from the verb as with ill-formed **fluttering*, to be compared with French *palpitant*. The experiencer meaning is realized in the subevent-subject position, which can be identified as the external argument of the subevent in transitive subevents like *turn pages*, or the possessor of a body-part inside the subevent in unaccusative subevents like *drop jaw* in English, and class 1 (*se marrer* (*body* (*x*))) and class (2b) *palpiter* (*coeur*) ‘flutter (heart)’ in French. This account extends to *effing*-adjectives, which are compounds with a covert V, of the transitive *page-turning* class. In French, if *-ant* is indeed the counterpart of *-ing*, adjectives

like *marrant* show that certain unergative verbs can become unaccusative owing to substandard register.

This article has found that such adjectives cannot have a physical reading, a fact which should shed light on the syntactic distinction(s) between phy and psych initiators. The existence of the phy-inside-psych type of construct, which English and French exemplify with adjectives in their own way due to their particular grammars, invites cross-categorial as well as cross-linguistic examination.

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