

Experimental Investigations of “Degree of Perfection” Adverbs in English

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“Degree of Perfection” Adverbs

Blight (1999): “degree of perfection” adverbs like *poorly*, *beautifully*, and *perfectly* can precede passive but not active verbs in English (1a–b):

- (1) a. * The construction workers were poorly building the house.
b. The house was being poorly built by the construction workers.
- Blight (1999), Caponigro & Schütze (2003), and Richards (2016) conclude that active verbs undergo a step of verb movement that passive ones do not.

Complication: “Less Transitive” Verbs

Ernst (2002): “less transitive” verbs also permit the Adv-V order (2):

- (2) a. She beautifully interprets these ideas in her new play.
- b. Behavioral measures perfectly correlate with neural ones.

- We have found disagreement with these judgments.
- Possible age difference: Speakers that do report the passive/active contrast in (1) are generally over the age of 40.

Other Factors Affect Judgments

Fronting the object greatly improves the Adv-V order in actives:

- (3) a. ? It was the house on the corner that the workers poorly built.
- b. ? It was the ball with frayed laces that Carola perfectly threw.

A double object passive is not improved:

- (4) a. * The children were being beautifully told stories.
- b. * The protesters were being perfectly denied access to the building.

Relevant factor not active vs. passive at all.

The Current Study

- We investigate discrepancies in judgments using formal acceptability surveys carried out with Amazon Mechanical Turk (AMT) (see Gibson et al. 2011, Sprouse 2011).
- Finding 1: There is an age difference.
- Finding 2: Multiple factors affect the judgments, including the length of the verb.
- We hypothesize that the judgments are about prosody.

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Those explicitly mentioned in Bowers (1993):

(5) poorly, beautifully, perfectly, horribly, badly

- Distinct from other manner adverbs (*slowly, happily*):
- Medial manner adverbs are typically unstressed (Kahnemuyipour 2009),
- But degree of perfection manner adverbs **must** be stressed unless backgrounded.

Experiments 1 and 2

- Designed to check the judgments reported in the literature.
- Checks for an effect of age:
- Experiment 1 recruited subjects under the age of 40 (18–39),
- Experiment 2 recruited subjects age 40+.
- The two experiments were otherwise identical.

Factors: adverb order x verb type (Active, Passive, LessTransitive).

- (6) a. Adv-V, Act: A student orchestra was poorly playing a sonata.
 - b. V-Adv, Act: A student orchestra was playing a sonata poorly.
 - c. Adv-V, Pass: A sonata was being poorly played by a student orchestra.
 - d. V-Adv, Pass: A sonata was being played poorly by a student orchestra.
 - e. Adv-V, LessTrans: New judges poorly understand legal requirements.
 - f. V-Adv, LessTrans: New judges understand legal requirements poorly.
-
- “Less transitive” verbs were those listed by Ernst (2002): *correlate, understand, interpret, comprehend, resent*

Experimental setup

- 77 native English speaking subjects from each age group (18-39, 40+);
- IP addresses restricted to the US;
- Sentences were rated on a 1–7 scale, where 7 represents fully acceptable.

Condition	18–39		40+	
	Mean	SD	Mean	SD
Adv-V, Act	5.83 (z = .22)	1.24	3.62 (z = -.92)	0.54
V-Adv, Act	6.30 (z = .46)	1.01	6.90 (z = .67)	0.31
Adv-V, Pass	6.51 (z = .56)	0.68	6.25 (z = .35)	0.43
V-Adv, Pass	5.58 (z = .11)	1.28	6.96 (z = .70)	0.19
Adv-V, LessTrans	5.49 (z = .06)	1.22	5.49 (z = -.01)	0.88
V-Adv, LessTrans	5.23 (z = -.07)	1.69	6.94 (z = .69)	0.25

Table: Results of Experiments 1 and 2

Summary, Experiments 1 and 2

- Speakers under the age of 40 do not perceive the contrast between active and passive verbs reported in the literature.
- Speakers over the age of 40 do.
- In the verb movement account, this would have to mean that active verbs have stopped undergoing a step of movement in the younger grammar.

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Factors Tested in Experiments 3 and 4

- Hypothesis: object fronting, right node raising (RNR), verb coordination, and adverb coordination will improve the order Adv-V; double object verbs will be less acceptable, or at least not more acceptable.
- (7)
- a. Baseline: A young girl perfectly threw the ball with frayed laces.
 - b. Fronting: It was the ball with frayed laces that Carola perfectly threw.
 - c. RNR: Carola perfectly caught, and perfectly threw, the tennis ball from the game.
 - d. VerbCoord: Maxine did a terrible job with those ballets: She badly wrote them, badly planned them, and badly danced them!
 - e. AdvCoord: A young girl quickly and perfectly threw the ball with frayed laces.
 - f. DoubleObj: George poorly played his wife a sonata by Mozart.

- Fronting, Right Node Raising (RNR), Adverb Coordination, and Verb Coordination significantly improve ratings for the older group ($p < .05$) but not for the younger group.

Table 2: Results of Experiments 3 and 4

Condition	18–39		40+	
	Mean	SD	Mean	SD
Baseline	5.85 (z = 0.93)	1.19	4.13 (z = -0.31)	1.58
Fronting	4.70 (z = 0.32)	1.07	5.12 (z = 0.18)	1.25
RNR	4.48 (z = 0.20)	1.39	6.29 (z = 0.75)	0.70
VerbCoord	4.59 (z = 0.26)	1.52	5.10 (z = 0.17)	1.59
AdvCoord	4.65 (z = 0.29)	1.19	5.56 (z = 0.39)	1.05
DoubleObj	5.60 (z = 0.80)	0.86	3.92 (z = -0.40)	1.56

Table: Results of Experiments 3 and 4

- The verb-raising account cannot be correct, even for the older speakers.
- The manipulations done in experiments 3 and 4 should not affect verb raising; all of the sentences use active verbs.
- There is no reason in the verb movement account that fronting, RNR, and coordination would affect verb raising.

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Double Object Verbs and Intransitives

- Passivizing a double object verb does not improve the Adv-V order.

(8) * The children were being beautifully told stories.

- Not expected if passive vs active voice is the factor, as previous research claimed.
- If instead relevant factor is NP inside VP, then expect Adv-V to be fine with intransitives – but this does not seem to be correct.

(9) * The children were beautifully singing.

- Experiment 5 seeks to verify these judgments.

Ex. 5 Items

Used verbs that can be either transitive or intransitive, divided according to whether they are unergative or unaccusative when intransitive:

- (10) a. Double Obj Act: The catcher perfectly threw the fan the baseball at the stadium.
- b. Double Obj Pass: The fan was perfectly thrown the baseball at the stadium.
- c. Unacc Act: The actor horribly tripped the stuntman in the scene.
- d. Unacc Pass: The stuntman was horribly tripped in the scene.
- e. Unacc Intrans: The stuntman horribly tripped in the scene.
- f. Unerg Act: The actress horribly sang the ballad in the movie.
- g. Unerg Pass: The ballad was horribly sung in the movie.
- h. Unerg Intrans: The actress horribly sang in the scene.

Condition	Age 40+	
	Mean	SD
Double Object Active	3.95 (z = -0.51)	1.83
Double Object Passive	3.95 (z = -0.51)	1.87
Unaccusative Active	4.91 (z = 0.01)	1.63
Unaccusative Passive	5.29 (z = 0.21)	1.35
Unaccusative Intransitive	4.56 (z = -0.20)	1.52
Unergative Active	4.17 (z = -0.41)	1.56
Unergative Passive	6.21 (z = 0.71)	1.36
Unergative Intransitive	5.09 (z = 0.11)	1.55

Table: Results of Experiment 5

- Double object actives and passives rated identically: voice not the relevant factor.
- Intransitives, both unergative and unaccusative, are rated significantly worse than passives ($p < .01$ in each case). Presence or absence of object inside VP is also not the only factor.

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- Speakers under 40 find the order Adv-V acceptable regardless of the voice of the verb;
- Speakers over 40 show essentially the pattern of judgments from the literature:
- Adv-V order is significantly better with passive verbs than active verbs,
- Also better with “less transitive” verbs.
- Fronting the object, right node raising, verb coordination, and adverb coordination all improve Adv-V order for over-40 speakers.
- Adv-V order is not affected by the voice of a double object verb;
- Intransitive verbs also resist the Adv-V order.

Match Theory (Kratzer & Selkirk 2007):

- Syntactic constituents have to map to prosodic constituents.
- Lexical (but not functional) syntactic heads map to prosodic words (PrW),
- XPs other than full clauses map to prosodic phrases,
- Clauses map to intonational phrases (iP).
- Match Theory does not adopt Strict Layering, so a prosodic phrase, for instance, can dominate another prosodic phrase.
- Kratzer & Selkirk (2007) divide prosodic phrases into two categories, *major phrase* (MaP) and *minor phrase* (MiP).
- The head of a minor phrase receives a stress;
- A single minor phrase within a major phrase receives the main stress.

- Kratzer & Selkirk (2007): Verbs in English can optionally be mapped to a minor phrase;
- If they are, they receive a secondary stress.
- Object NPs are always mapped to minor phrases in all-new contexts and so will always receive a stress.
- The default stress rule at the major phrase level in English is for the rightmost minor phrase in the major phrase to receive the main stress.
- So the object will typically bear the primary stress in an all-new context.

Simple Transitive, Both Age Groups

(11)

(MaP	X	)	(MaP		X)		
(MiP	X	)	(MiP	X	)	(MiP	X)
(PrW	X	)	(PrW	X	)	(PrW	X)
	the man		sang		the song			

- Default stress rule in English: rightmost major phrase receives the main stress.
- Results in primary stress on the object.

- Kahnemuyipour (2009: 87): Manner adverbs in medial position do not bear stress.
- Degree of perfection adverbs do, bear the nuclear stress of the sentence when they are acceptable in that position, at least in all-new contexts.
- We propose the following constraint:

(12) DOPSTRESS: Degree of perfection adverbs must receive primary stress unless they are given.

Holds of all speakers regardless of age:

- (13) **ADVINVP**: An AdvP that dominates only an Adv head must be parsed into a major phrase that includes pronounced material dominated by the VP that the AdvP modifies.
- Not necessary that the entire VP be parsed into a prosodic phrase (a major phrase) with the adverb;
 - **ADVINVP** will be satisfied if a medial adverb is parsed with the verb.
 - Will also be satisfied if a final adverb is parsed with (part of) a preceding direct object.

- (14) **ALIGNV (Over 40 grammar only):** In an all-new sentence, the left edge of a lexical V must align with the left edge of the major phrase that includes primary stress.

Degree of Perfection Adverb, Under 40

(15)

(MaP	X	)	(MaP(MaP	X))			
(MiP	X	)	(MiP	X	)	(MiP	X	)	(MiP	X)
(PrW	X	)	(PrW	X	)	(PrW	X	)	(PrW	X)
	the man			horribly			sang			the song	

- Adverb, verb, and object are all mapped to minor phrases.
- DOPSTRESS constraint requires main stress on the adverb.
- Accomplished by grouping only it into a major phrase, and then adjoining all the other minor phrases of the VP to that major phrase.
- The rightmost minor phrase in the major phrase is the one consisting of the adverb, since the other minor phrases are simply adjoined.
- ADVINVP also satisfied: Adverb is grouped into a major phrase with the rest of the VP (the one to which the verb and object are adjoined).

(16)

(MaP	X	)	(MaP(MaP	X)			
(MiP	X	)	(MiP	X	)	(MiP	X)
(PrW	X	)	(PrW	X	)	(PrW	X)
	the man			horribly			sang	

- Adverb and verb mapped to minor phrases.
- DOPSTRESS: Adverb must be mapped to a major phrase, within which it can receive the main stress.
- Minor phrase consisting of the verb is adjoined to that major phrase.

- In the above representations the verb is not aligned with the left edge of the major phrase that includes the main stress.
- No way to satisfy both DOPSTRESS and ALIGNV, given ADVINVP.

Only Adv at End Can Satisfy Constraints

(17)

(MaP	X	)	(MaP			X)	
(MiP	X	)	(MiP	X	)	(MiP	X)
(PrW	X	)	(PrW	X	)	(PrW	X)
	the man			sang			horribly	

- Main stress falls on the adverb, in accordance with DOPSTRESS.
- ALIGNV satisfied, as the left edge of the prosodic word dominating the verb aligns with the left edge of the major phrase.

- Our account is not one of absolute ungrammaticality, but acceptability and preferences.
- Even the lowest acceptability score that we have found for the order Adv-V is much higher than we see for truly ungrammatical sentences.
- Our proposal does not treat these as categorically ungrammatical, but rather as highly dispreferred from a prosodic perspective.

Explaining Improvement in Adv-V Order

Some of the factors that improve Adv-V order do so because of discourse factors that change the requirements for stress.

(18) It was the ball with frayed laces that Carola ($_{\text{MaP}}(\text{MaP}$ perfectly) threw).

- Fronting the object as in a cleft makes the sentence no longer all-new.
- Pivot of the cleft is focused while the rest of the clause is backgrounded.
- ALIGNV no longer applies: only applies in all-new contexts.
- Over 40 speakers can parse the adverb with the verb but have the main stress of the embedded clause on the adverb.

(19) Carola (_{MaP} perfectly cáught), and (_{MaP} perfectly thréw), the tennis ball from the game.

- In RNR examples, the adverbs in the conjuncts do not contrast, the verbs do.
- This makes the adverbs given, so that they do not need to bear primary stress according to DOPSTRESS (12).
- This also makes the ALIGNV constraint irrelevant, since the sentence is no longer all-new.
- The adverb still has to be parsed with the VP to satisfy ADVINVP (13),
- Since the verb is contrastive it bears primary stress.

(20) Maxine did a terrible job with those ballets:

She (_{MaP} badly (_{MaP} wróte them)), (_{MaP} badly (_{MaP} plánned them)),
and (_{MaP} badly (_{MaP} dánced them))!

- Adverbs and objects in our examples are not contrastive, but given, so ALIGNV is not relevant.
- Adverb and pronoun can be incorporated into a major phrase where the verb receives primary stress because it is contrastive.
- Assume the adverb is adjoined to the major phrase. (ALIGNV is satisfied, but it does not need to be.)
- The pronoun is either adjoined to the prosodic word of the verb, or it is a prosodic word that is part of the minor phrase that includes the verb.

(21) A young girl (_{MaP}(_{MaP} quickly) and (_{MaP} perfectly)) (_{MaP} threw the ball with frayed laces).

- AdvP dominates more than a single Adv head, so ADVINVP does not apply.
- AdvP parsed as its own major phrase.
- Clause is not an all-new context, so V not required to align, can be put into a major phrase with the object.
- AdvS seem to receive equal stress, we assume that they are both major phrases and receive main stress since they are contrastive.

Adjectival passives readily allow a preceding degree of perfection adverb with main stress:

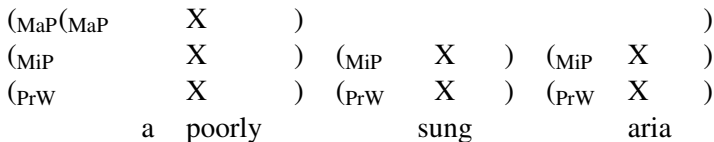
- (22) a. That was a *béautifull*y thròwn bàll.
b. That was a *póor*ly sùng ària.

- Allowed in our account because adjectives are not subject to the alignment constraint ALIGNV, only verbs are.
- (The copula *was* is a functional verb, not a lexical verb, and is also not subject to ALIGNV.)

Parsing of Adjectival Passives

Adv constitutes a major phrase, to which the rest of the NP is adjoined:

(23)



- Just like active VP in the under-40 grammar.
- At the level of the major phrase, stress is assigned to the rightmost minor phrase within the major phrase.
- DOPSTRESS is still relevant, Adv gets main stress.

- Passive verbs are potentially ambiguous between a verbal and an adjectival parse, at least initially.
- Some of the previous literature, like Caponigro & Schütze (2003), presented their examples in the progressive aspect in order to rule out an adjectival parse.
- But adjectives can occur in the progressive in certain circumstances:
Stop being stupid!, You're being even more French than usual.
- Proposal: Adjectival parse is considered, at least temporarily.
- On initial parse, verb is parsed as an adjective, so ALIGNV is not relevant.
- Prosody appears to be well-formed, with main stress on the adverb and the adverb in a major phrase with the VP.

Contrast Between Actives and Passives

- (24) a. * The players (_{MaP}(_{MaP} póorly) threw the ball).
b. The ball was (_{MaP}(_{MaP} póorly) thrown).
c. The ball was being (_{MaP}(_{MaP} póorly) thrown).

- (24a): ALIGNV violated.
- (24b): Completely acceptable, V can be parsed as adjective, ALIGNV not relevant.
- (24c): Adjectival parse temporarily considered; even if rejected, considering it was enough to fool the parser into thinking all prosodic constraints had been satisfied.

Double Object Verbs

- Double object verbs cannot form adjectival passives (Wasow 1977).
- The adjectival parse is therefore not even temporarily considered, and ALIGNV is violated.

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“Less Transitive” Verbs

Ernst (2002): *correlate, understand, interpret, comprehend, resent*

- All of these except *resent* are at least trisyllabic.
- The active and passive verbs from the literature are all maximally disyllabic, and are in fact mostly monosyllabic.
- Hypothesis: It is the *length* of the verb that matters here, not some vague notion of transitivity or affectedness of the object as Ernst (2002) claims.

Experiment 6

Used minimal pairs of near-synonymous verbs that differed only in length and could not be thought to differ in transitivity.

- (25)
- a. ShortV Active: The student horribly threw the ball into the basket.
 - b. LongV Active: The student horribly catapulted the ball into the basket.
 - c. ShortV Passive: The ball was horribly thrown into the basket.
 - d. LongV Passive: The ball was horribly catapulted into the basket.

Results of Experiment 6

Condition	Age 40+	
	Mean	SD
ShortV Active	4.35 (z = 0.00)	1.54
LongV Active	6.07 (z = 0.73)	1.34
ShortV Passive	5.68 (z = 0.57)	1.42
LongV Passive	5.43 (z = 0.46)	1.59

Table: Results of Experiment 6

- Two-factor ANOVA (length \times voice) shows a significant main effect of verb length ($F(1,79)=39.56, p<.0001$),
- As well as a significant effect of voice ($F(1,79)=6.81, p<.01$).

- Effect of length is the strongest evidence yet for a prosodic rather than a syntactic account.
- Syntax, and head movement in particular, is not concerned with the length of heads.
- In many models syntax does not even have access to that information (the Principle of Phonology-Free Syntax, Zwicky 1969).

(26) (MaP the workers) (MaP(MaP perfectly) (MaP reconstructed)) (MaP the vandalized monument.)

- Longer verbs require their own major phrase. This requirement overrules the ALIGNV constraint.
- The adverb still receives the main stress, while the verb and the object receive secondary stress.
- There is a major phrase boundary between the adverb and the verb, and between the verb and the object.
- Propose that V and Adv are grouped together into another major phrase, to satisfy ADVINVP.
- ALIGNV violated.

- (27) ALIGNV (Over 40 grammar only, revised): In an all-new sentence, the left edge of a lexical V **that is no larger than a single foot** must align with the left edge of the major phrase that includes primary stress.

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Summary of Analysis

- **ADVINVP**: Adv must be part of a major phrase with material from the VP that it modifies.
- **DOPSTRESS**: Degree of perfection Advs must receive the main stress.
- **ALIGNV** (over-40 grammar only): Left edge of a lexical verb must align with the major phrase that includes main stress.
- **DOPSTRESS** requires that medial adverb bear the main stress, but then the verb cannot align with the left edge of the major phrase.

- NOT: A step of verb movement has been lost;
 - What has been lost is a constraint on prosody, ALIGNV.
- (28) ALIGNV (Over 40 grammar only, revised): In an all-new sentence, the left edge of a lexical V that is no larger than a single foot must align with the left edge of the major phrase that includes primary stress.
- Speakers under 40 must have failed to acquire this constraint.

Failure to Acquire AlignV

Only relevant: All-new context with medial adverb.

- The number of sentences in the input that could indicate to the learner that there is an ALIGNV constraint is probably quite small.
- The size constraint further limits its applicability: only verbs that are no larger than a single foot will show its effects.
- If there is scarce evidence for the constraint, it is no surprise if learners fail to acquire it.

Note on Age Groups

- There were some speakers (about 6%) in each age group who did not pattern with their peers.
- While there is a general tendency for the ALIGNV constraint to be lost over time, some younger speakers have acquired it, and some older speakers have not.
- Grammatical change produced by the absence of ALIGNV is not a wholesale change, but rather a proportional one.
- What changed was that a smaller proportion acquired it in the younger age group than in the older age group.

Caution: Adverbs!

- Researchers must use caution when interpreting judgments regarding adverb placement.
- The common conclusion that it indicates head movement may be unsound, and may lead to further incorrect analyses.

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Items for Experiments 1 and 2 I

AdvActiveV A volunteer group was beautifully building a house.

ActiveVAdv A volunteer group was building a house beautifully.

AdvPassV A house was being beautifully built by a volunteer group.

PassVAdv A house was being built beautifully by a volunteer group.

AdvLessActV Behavioral measures beautifully correlate with neural measures.

LessActVAdv Behavioral measures correlate with neural measures beautifully.

AdvActiveV A student orchestra was poorly playing a sonata.

ActiveVAdv A student orchestra was playing a sonata poorly.

AdvPassV A sonata was being poorly played by a student orchestra.

PassVAdv A sonata was being played poorly by a student orchestra.

AdvLessActV New judges poorly understand legal requirements.

LessActVAdv New judges understand legal requirements poorly.

AdvActiveV A traveling group was perfectly performing a dance.

Items for Experiments 1 and 2 II

ActiveVAdv A traveling group was performing a dance perfectly.

AdvPassV A dance was being perfectly performed by a traveling group.

PassVAdv A dance was being performed perfectly by a traveling group.

AdvLessActV Mathematicians perfectly interpret logical arguments.

LessActVAdv Mathematicians interpret logical arguments perfectly.

AdvActiveV A young boy was badly throwing a baseball.

ActiveVAdv A young boy was throwing a baseball badly.

AdvPassV A baseball was being badly thrown by a young boy.

PassVAdv A baseball was being thrown badly by a young boy.

AdvLessActV Book reviewers badly comprehend modern novels.

LessActVAdv Book reviewers comprehend modern novels badly.

AdvActiveV An old man was horribly cooking a meal.

ActiveVAdv An old man was cooking a meal horribly.

AdvPassV A meal was being horribly cooked by an old man.

PassVAdv A meal was being cooked horribly by an old man.

AdvLessActV Fashion designers horribly resent negative remarks.

LessActVAdv Fashion designers resent negative remarks horribly.

Items for Experiments 3 and 4 I

Baseline A volunteer group beautifully built the house down the street.

A student orchestra poorly played some sonatas by Mozart.

A young girl perfectly threw the ball with frayed laces.

A tall woman badly sang an opera by Puccini.

An old man horribly cooked a steak with thick gristle.

A new artist beautifully painted a picture of a forest.

A rich chef badly baked a cake with three layers.

A short boy poorly read a speech about freedom.

A new bartender perfectly poured some drinks with lemon.

Fronting It was the house down the street that Max beautifully built.

It was the sonata by Mozart that Amy poorly played.

It was the ball with frayed laces that Carola perfectly threw.

It was the opera by Puccini that Maxine badly sang.

It was the steak with thick gristle that Michael horribly cooked.

It was the picture of a forest that Bette beautifully painted.

Items for Experiments 3 and 4 II

It was the cake with three layers that Lara badly baked.

It was the speech about freedom that Pablo poorly read.

It was the drink with lemon that Mika perfectly poured.

RNR Max beautifully designed, and beautifully built, the house down the street.

Amy poorly composed, and poorly played, the sonata on the radio.

Carola perfectly caught, and perfectly threw, the tennis ball from the game.

Maxine badly wrote, and badly sang, the opera about cats.

Michael horribly seasoned, and horribly cooked, the steak on the platter.

Bette beautifully planned, and beautifully painted, the art in the hallway.

Lara badly frosted, and badly baked, the cake for her birthday.

Pablo poorly wrote, and poorly read, the speech on those cards.

Mika perfectly mixed, and perfectly poured, the drink on the counter.

3x Verb Coord Max did a great job with those houses: He beautifully designed them, beautifully built them, and beautifully decorated them!

Items for Experiments 3 and 4 III

Amy did a rotten job with those songs: She poorly composed them, poorly played them, and poorly advertised them!

Carola did a wonderful job with those tennis balls: She perfectly eyed them, perfectly caught them, and perfectly threw them!

Maxine did a terrible job with those ballets: She badly wrote them, badly planned them, and badly danced them!

Michael did a bad job with those meals: He horribly invented them, horribly seasoned them, and horribly cooked them!

Bette did an amazing job with those pictures: She beautifully planned them, beautifully drew them, and beautifully painted them!

Lara did an awful job with those cakes: She badly designed them, badly baked them, and badly frosted them!

Pablo did a bad job with those speeches: He poorly planned them, poorly wrote them, and poorly read them!

Items for Experiments 3 and 4 IV

Mika did a splendid job with those drinks: She perfectly mixed them, perfectly poured them, and perfectly served them!

Adverb Coord A volunteer group swiftly and beautifully built the house down the street.

A student orchestra slowly and poorly played the sonatas by Mozart.

A young girl quickly and perfectly threw the ball with frayed laces.

A tall woman loudly and badly sang an opera by Puccini.

An old man sadly and horribly cooked a steak with thick gristle.

A new artist carefully and beautifully painted a picture of a forest.

A rich chef confidently and badly baked a cake with three layers.

A short boy quietly and poorly read a speech about freedom.

A new bartender efficiently and perfectly poured some drinks with lemon.

Heavy VP Peter beautifully built his mom a house on this street.

George poorly played his wife a sonata by Mozart.

Maddie perfectly threw her teammate the ball with frayed laces.

Items for Experiments 3 and 4 V

Margo badly sang her husband an opera by Puccini.

Mitch horribly cooked his kids a steak with thick gristle.

Tina beautifully painted her friend a picture of a forest.

Jenny badly baked her sister a cake with three layers.

Eric poorly read the crowd a speech about freedom.

Claire perfectly poured the customer a drink with lemon.

Items for Experiment 5 I

- Unaccusatives:** 1a. The actor horribly tripped the stuntman in the scene.
1b. The stuntman was horribly tripped in the scene.
1c. The stuntman horribly tripped in the scene.
2a. The home chef perfectly boiled the soup on the stove.
2b. The soup was perfectly boiled on the stove.
2c. The soup perfectly boiled on the stove.
3a. The scientists poorly mixed the chemicals in the test tube.
3b. The chemicals were poorly mixed in the test tube.
3c. The chemicals poorly mixed in the test tube.
4a. The schoolgirl beautifully broke the Kit-Kat between the wafers.
4b. The Kit-Kat was beautifully broken between the wafers.
4c. The Kit-Kat beautifully broke between the wafers.
5a. The host beautifully dropped the confetti at the party.
5b. The confetti was beautifully dropped at the party.
5c. The confetti beautifully dropped at the party.

Items for Experiment 5 II

6a. This chef badly melted the chocolate over the flame.

6b. The chocolate was badly melted over the flame.

6c. The chocolate badly melted over the flame.

Unergatives:

1a. The actress horribly sang the ballad in the movie.

1b. The ballad was horribly sung in the movie.

1c. The actress horribly sang in the scene.

2a. The performer perfectly danced the ballet on the stage.

2b. The ballet was perfectly danced on the stage.

2c. The performer perfectly danced on the stage.

3a. The patient poorly ate the burgers with one hand.

3b. The burgers were poorly eaten with one hand.

3c. The patient poorly ate with one hand.

4a. The snake beautifully chewed its prey in just seconds.

4b. The prey was beautifully chewed in just seconds.

Items for Experiment 5 III

- 4c. The snake beautifully chewed on the prey.
- 5a. The racer beautifully drove the 20-foot truck around the track.
- 5b. The 20-foot truck was beautifully driven around the track.
- 5c. The racer beautifully drove around the track.
- 6a. The spider badly climbed the rainspout during the storm.
- 6b. The rainspout was badly climbed during the storm.
- 6c. The spider badly climbed during the storm.

Double Objects:

- 1a. The midfielder horribly passed his teammate the ball in the game.
- 1b. The teammate was horribly passed the ball in the game.
- 2a. The catcher perfectly threw the fan the baseball at the stadium.
- 2b. The fan was perfectly thrown the baseball at the stadium.
- 3a. The athlete poorly handed the second runner the baton in the race.
- 3b. The second runner was poorly handed the baton in the race.
- 4a. The scammer beautifully slipped the policeman a bribe undetected.

Items for Experiment 5 IV

- 4b. The policeman was beautifully slipped a bribe undetected.
- 5a. The child beautifully kicked her babysitter a beanbag in the backyard.
- 5b. The babysitter was beautifully kicked a beanbag in the backyard.
- 6a. The EMT badly gave the patient CPR in the ambulance.
- 6b. The patient was badly given CPR in the ambulance.

Items for Experiment 6 I

- 1a. The student horribly threw the ball into the basket.
- 1b. The student horribly catapulted the ball into the basket.
- 1c. The ball was horribly thrown into the basket.
- 1d. The ball was horribly catapulted into the basket.
- 2a. The worker perfectly built the model in the workshop.
- 2b. The worker perfectly reconstructed the model in the workshop.
- 2c. The model was perfectly built in the workshop.
- 2d. The model was perfectly reconstructed in the workshop.
- 3a. The doctor poorly made the new arm for the patient.
- 3b. The doctor poorly reverse-engineered the new arm for the patient.
- 3c. The new arm was poorly made for the patient.
- 3d. The new arm was poorly reverse-engineered for the patient.
- 4a. The employee perfectly did the tasks for the new job.
- 4b. The employee perfectly accomplished the tasks for the new job.
- 4c. The tasks were perfectly done for the new job.

Items for Experiment 6 II

- 4d. The tasks were perfectly accomplished for the new job.
- 5a. The artist beautifully worked the clay in the studio.
- 5b. The artist beautifully manipulated the clay in the studio.
- 5c. The clay was beautifully worked in the studio.
- 5d. The clay was beautifully manipulated in the studio.
- 6a. The double agent badly ruined the mission in Europe.
- 6b. The double agent badly compromised the mission in Europe.
- 6c. The mission was badly ruined in Europe.
- 6d. The mission was badly compromised in Europe.

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