Detailed Guide to Philadelphia Naming Test (PNT) Scoring

Part I of this guide defines the terms, procedures, and error categories relevant to Conventional Scoring of the PNT. Part II explains the modifications to the system required for application of the weight-decay or semantic-phonologic naming model (Model Scoring) (e.g., Dell et al., 1997; Schwartz et al., 2006; and to apply the model-fitting program: http://langprod.cogsci.uiuc.edu/cgi-bin/webfit.cgi). Part III describes a more elaborate, two-level coding system for the PNT (Roach et al., 1996). Throughout this guide, targets are shown in parentheses, responses are in quotation marks.

Part I: Conventional Scoring

Complete Attempt (C): On each trial, score the subject’s first “Complete Attempt”, defined as:
The first minimally CV (consonant-vowel) or VC response (schwa is not counted as a vowel) that meets one of the following criteria:

1) The attempt is not self-interrupted (cut-off) and has clear downward or upward/questioning intonation; may or may not be separated from a subsequent attempt by a noticeable pause.

2) The attempt is not self-interrupted (cut-off), is spoken with level intonation, and is followed by a noticeable pause (informal 1 sec. count). If there is no noticeable pause preceding a subsequent attempt, the attempt is not complete (see “Fragment”).

Multisyllabic targets (3 or more syllables) have special considerations:

- Unless the following exceptions apply, a complete attempt to a multisyllabic target can not be monosyllabic.
  
  e.g., (helicopter)→"cop" not a complete response (see “Fragment)
  
  (microscope)→"cup" not a complete response (see “Fragment”)

Exceptions: the monosyllabic response is related to the target semantically or comprises one of its morphemes; in this case, the attempt is considered complete and scored as an error:

  e.g., (octopus)→ “squid” a complete response (see “Semantic Error”)
  
  (cheerleaders)→ "cheer" a complete response (see “Morpheme Omission” under “Miscellaneous”)

Additional scoring examples follow:

(iron)→ "uh key /f/- /s::it/ key /fər/- you do those thing upstairs"

(belt)→ "fpa/ [(schwa)] /bent/ /bent/ it's a /bent/, it's a /bent/ oh"


(eskimo)→ “oh the /sko::/ [(level intonation and no noticeable pause before the next response)]

Correct (√): The target as given on the score-sheet; with the following exceptions:
### PHILADELPHIA NAMING TEST

<table>
<thead>
<tr>
<th>target</th>
<th>alternate correct response</th>
</tr>
</thead>
<tbody>
<tr>
<td>#26 (waterfall)</td>
<td>“falls”</td>
</tr>
<tr>
<td>#124 (mountain)</td>
<td>“mountain top”</td>
</tr>
</tbody>
</table>

- Allow for addition or deletion of plural morpheme.
- Allow for addition of prepositional phrase e.g., (can) → "can of peas".
- Allow for addition of modifier, e.g., (bone) → "dog's bone".
- If the subject says "type of X" where X is the target, the answer is correct.
- Do not penalize non-standard English speakers for omission of the final consonant in consonant clusters e.g., (desk)→"/dɛs/ “, if it is consistent with their dialectal pattern.
- Optional lenient scoring: Patients with a motor speech disorder (e.g., dysarthria, speech apraxia) may be allowed one sound omission, addition, or substitution per response when considering correctness.

**Description (D):** A response that provides a characterization of the target, or attempts to explain its function or purpose.

* e.g., (fireplace)→ "that's where you put the /w/ /wud/.
  (well) → “in a ringer around under all of it has water”

The following are coded as Description:
- A single verb, adjective, or adverb that has a semantic relationship to the target is coded as Description, not Semantic,
  * e.g., (skis) →"skiing",
  (dinosaur)→ "scary"
  (scarf) →"outside"
- A single verb, adjective or adverb that has no relationship to the target or does not characterize it in any way is also coded as Description,
  * e.g., (beard)→“hit”
- A response in the form "type of X" where "X" is a superordinate of the target.
  * e.g., (apple)→ “type of fruit”
- A response that negates the target, e.g., (dinosaur)→ “not a dinosaur”
- A response that includes a carrier phrase with the name of the target,
  * e.g., (door)→”open the door”

**Response types that do not meet the criteria for Description:**
- A response that is a general or personal commentary, e.g., (strawberry)→“I had them last night”. (see " No Response").
- A response that includes spelling, e.g., (basket)→ “it begins with a B”. (see "No Response").
- Single verbs, adjectives, and adverbs that have a phonological relationship to the target: (see “Formal Error”).

**Formal Error (F):** A real word response that meets the criterion for Phonological Similarity to the target (see below under “Phonological Similarity”).

* e.g., (snail) → “monster”, (ghost) → “stop”, (basket) → “below”

© 1996 AEHN/ Moss Rehabilitation Research Institute
The Formal Error category excludes the following:

- Formal errors exclude substitutions or additions of morphemes in compound words, e.g., (microscope) \( \rightarrow \) “telescope”. (see “Semantic Error”)

- Formal errors exclude morphological omissions in multi-morphemic targets (including compounds), e.g., (ruler) \( \rightarrow \) “rule”, (fireman) \( \rightarrow \) “fire”. (see “Miscellaneous”).

Fragment (f): A minimally CV (consonant-vowel) or VC response (schwa not counted as a vowel), which is abbreviated in that either:

- the attempt (partial or whole word) was self-interrupted (cut off)
  e.g., (cane) \( \rightarrow \) "/kre-" (where the dash “/…-/” indicates voicing was cut off)
  (seal) \( \rightarrow \) ”snail-“ (the whole word is self-interrupted)
  
  or

- a monosyllabic response was given to a multisyllabic target (3 or more syllables)
  e.g., (calendar) \( \rightarrow \)"/kæl /" (a monosyllabic response to a multisyllabic target)
  
  or

- an utterance with level intonation is followed immediately (i.e. without noticeable pause) by another attempt.

Note: You do not have to enter Fragments into the score-sheet to code them, but you must be able to identify them in order to bypass them in search of first Complete Attempt.

Miscellaneous: Conventional Scoring typically includes the following types of responses:

- **Blend**: A word or nonword response that is a blend of two synonyms to the target, or a blend of the target and an identifiable synonym: There must be close semantic association and phonological similarity:
  e.g., (pineapple) \( \rightarrow \) “/bənflpəl/” (blend of banana and pineapple, or apple)

- **Morpheme Omission**: A response that is a morphological omission in a multi-morphemic target (including compounds):
  e.g., (ruler) \( \rightarrow \) “rule”, (fireman) \( \rightarrow \) “fire”

- **Phonological Jargon**: e.g., (dog) \( \rightarrow \) “he’s down /rəmən-əzər/ a /bəs-kləf/”

- **Picture Part Error**: A word or nonword response that is a component of the depicted target:
  e.g., (bride) \( \rightarrow \) "veil" - where picture shows bride wearing a veil

- This category may also include **Phonologically Unrelated Nonwords** (see below under “Nonword”), i.e. a nonword response that fails to meet the criteria for Phonological Similarity: e.g., (flashlight) \( \rightarrow \) “/flækl/”

- **Proper Nouns**: A proper noun that is unrelated to the target phonologically or semantically (see below for Proper Noun).
PHILADELPHIA NAMING TEST

**Mixed Error (M):** A real word response that satisfies the criterion for Phonological Similarity (see "Phonological Similarity") and bears an obvious semantic relation to the target.

* e.g., (hat) → "hood", (strawberries) → "cherries"

*Response types that do not meet the criteria for "Mixed Error":*
  - Mixed Errors exclude responses that result from substitution or addition of morphemes in compound words:
    * e.g., (microscope) → “telescope”. (see “Semantic Error”)
  - Mixed Errors exclude responses that result from omission of morphemes in multi-morphemic targets (including compounds):
    * e.g., (ruler) → “rule”, (cheerleaders) → "cheer" (see “Miscellaneous”).

**Nonword-Phonologically Related (N):** A nonword response that meets the criterion for Phonological Similarity to the target. (see “Phonological Similarity”)

* e.g., (dinosaur) → /dai-na-sərəs/

**Nonword-Phonologically Unrelated; (a.k.a. Abstruse Neologism -AN):** A nonword response that does not meet the criterion for Phonological Similarity to target. (see “Phonological Similarity”)

* e.g., (apple) → /flʊər/

In conventional coding, this may include responses that are phonologically related to a semantic relative of the target

* e.g., (apple) → /bənənə/

**No response (NR):** Subject indicates verbally or non-verbally that s/he cannot name the picture. Also includes the spelling of words aloud, sound effects, and whispered responses.

* e.g., "I know it but I can't say it"
  (spider) → "W-I-D-E-R"
  (owl) → "hoot"
  (frog) → "/rIbIt/

**Perseveration (P):** In conventional scoring, this is generally a second-order code, indicating that a response whose primary code is Semantic, Mixed, Formal, or Unrelated is one that was produced by the subject on a previous trial within the same session.

* e.g., (can) → “cup” with a prior response of "cup": M (P)

**Phonological error:** Any error, word or nonword, that meets the Phonological Similarity criterion;

* Includes: Phonologically Related Nonwords; e.g., (dinosaur) → /dai-na-sərəs/*

* Formal errors; e.g., (snail) → “monster”

**Phonological Similarity:** Target and response share:
- the stressed vowel, initial or final phonemes;
PHILADELPHIA NAMING TEST

e.g., (can) → "comb", (well) → "ball", (rope) → "hose", (tractor) → “wagon” (share the
/æ/),

(octopus) → "otter", (vest) → "jacket"

or

• two or more phonemes (including stressed vowels but excluding unstressed vowels) at
any position;
e.g., (octopus) → "spider" (share two phonemes - /s/ and /p/)
or

• one or more phonemes at a corresponding syllable and word positions, aligning words
from left to right;
e.g., (seaʃ) → “dol-fin” (share the /l/)

(ca-me-ra) → "photo-graph" (/r/ at corresponding syllable position - onset of
syllable- and corresponding word position - third syllable of target and response)

(ther-mo-me-ter) → “ca-mel”

NOTE:
• Plural morphemes and schwa are not counted in determining Phonological Similarity.
• Consonant clusters are treated as a unit when determining syllable position. The
following do have Phonological Similarity:
e.g., (cane) → "hand" (syllable position of /n/ corresponds as part of consonant cluster)
(tractor) → “rug” (share the initial /r/);
(plant) → “fern” (share the /n/);

Fails test for Phonological Similarity:
e.g., (type-wri-ter) → "/'tɔrɪ-kər/"
(/t/ is at a corresponding syllable position - onset of syllable- but not corresponding word
position- second syllable of target versus first syllable of response)

e.g., (di-no-saur) → "pos-sum"
(/s/ is at corresponding syllable position - onset of syllable- but not corresponding word
position when aligned left–to-right- third syllable of target versus second syllable of
response)

e.g., (map) → “pin”
(One sound is in common, but it is not in a corresponding position.)

Proper Nouns: Proper Noun responses that have a semantic relationship to the target are coded
as Semantic, e.g., (tractor) → “John Deere”

© 1996 AEHN/ Moss Rehabilitation Research Institute
PHILADELPHIA NAMING TEST

Responses that have only a phonological response to the target are coded as Phonologically-Related Nonwords,
\[ e.g., \text{(dinosaur)} \rightarrow \text{“Dinah Shore”} \]

Responses that are unrelated phonologically or semantically to the target are classified as Miscellaneous,
\[ e.g., \text{(book)} \rightarrow \text{“Canada”} \]

**Semantic Error (S):** A real word noun response related to the target by one of the following:

- **synonym**  \[ e.g., \text{(toilet)} \rightarrow \text{“commode”} \]
- **category coordinate**  \[ e.g., \text{(banana)} \rightarrow \text{“apple”} \]
- **superordinate**  \[ e.g., \text{(apple)} \rightarrow \text{“fruit”} \]
- **subordinate**  \[ e.g., \text{(flower)} \rightarrow \text{“rose”} \]
- **associated**  \[ e.g., \text{(bench)} \rightarrow \text{“park”} \]
- **diminutives**  \[ e.g., \text{(dog)} \rightarrow \text{“doggie”} \]

- A related proper name that notes an association, \[ e.g., \text{(star)} \rightarrow \text{“Cowboys”} \]

- The addition or substitution of a morpheme in a compound word:
  \[ e.g., \text{(microscope)} \rightarrow \text{“telescope”} \]

**Unrelated Error (U):** A word substitution that does not qualify as semantically or phonologically related to the target.

- Includes responses that bear a purely visual relation to the target:  \[ e.g., \text{(waterfall)} \rightarrow \text{“tie”} \]

- Includes target unrelated responses that perseverate a response from a previous trial within the same session:  \[ e.g., \text{(ghost)} \rightarrow \text{“book”} \]

**Visual Error:** (see “Unrelated error” above)
Part II: Model scoring

http://langprod.cogsci.uiuc.edu/cgi-bin/webfit.cgi

For model scoring of the PNT using the online model-fit program, the following response codes are relevant:

1. Correct- See Part I
2. Semantic Error- See Part I
3. Formal Error- See Part I
4. Mixed Error- See Part I
5. Unrelated Error- See Part I
6. Nonword- Includes both phonologically-related and phonologically-unrelated nonwords, a.k.a. Abstruse Neologisms (defined in Part I)
7. Miscellaneous- As defined in Part I, except that phonologically-unrelated nonwords are not counted here, but instead are counted in the nonword category.
8. Non-naming responses (a.k.a. “Omissions”) - comprises No Response and Description Errors, as defined in Part I, as well as Miscellaneous Errors, as defined above.

Note: When using the model-fitting program, enter counts for the first six categories only. In the default mode, these counts are automatically converted to proportions that sum to 1.0, thereby normalizing for non-naming responses (see inclusive no. 8 above) (for rationale, see Dell et al., 2004). The user should enter the total for the six categories in the cell marked “N” so that the model computes the appropriate Chi-Square value.
PHILADELPHIA NAMING TEST

Part III: Two-level coding system for the PNT
(Roach et al., 1996)

A unique two-level coding system that differs from the conventional method of scoring was developed for the PNT. Most responses can be given a two-level code that allows for closer analysis and theoretical implications. A level 1 code classifies the response at a lexical level and a level 2 code classifies the response at a phonological level:

**Level 1 codes (Lexical level):**
1. Correct- See Part I
2. Target Attempt (TA)- a response that satisfies the criteria for phonological similarity (See Part I for phon.sim.) between the subject's response and the objective target. Target attempts must take a Level 2 code. Conventional scores for Formal errors, phonologically-related nonwords, and miscellaneous- morpheme omissions are captured here.
3. Semantic- See Part I
4. Mixed- See Part I
5. Other- unrelated verbal paraphasia; a one-word response (real word) that does not fit any of the other Level 1 codes; includes visual errors. Conventional scoring for these type errors is included in Unrelated errors in Part 1.
6. Blend- See Miscellaneous in Part I
7. Picture Part- See Miscellaneous in Part I
8. Perseveration- At Level 1 perseveration refers to the duplication of a response produced by the subject on any previous trial within the same session. Level 1 perseverations break down as follows:
   (a) unambiguous perseverations - Enter "P" in the Level 1 column.
   (b) one of multiple possibilities - Enter "(P)" next to the Level 1 code.
   e.g. (can) - with prior response "cup":
   response "cup" is M (P)
   However, there is no O(P)

   superordinate description having generalized applicability is repeatedly given as the response (3 or more times), code this response as a description, not a perseveration.
   e.g., (strawberry, apple, banana) → “fruit”
   (Perseverations were included in Unrelated errors in Part I)
9. Description- See Part I
10. No Response- See Part I

**Level 2 codes (Phonological level):**
1. Sound error/word outcome (S/W):
   A Level 2 code indicating that the phonological structure of the response deviates from the Level 1 target and constitutes a real word; must be found in the dictionary; excludes proper nouns. To classify as a real word, the response must be listed in the Merriam Webster’s Collegiate Dictionary; inflected forms of entries are also accepted as words.
   e.g. (corn) - cab
2. Sound error/nonword outcome (S/NW):
   A Level 2 code indicating that the phonological structure of the response deviates from the
   Level 1 target and does not constitute a real word; includes proper nouns that have no
   semantic relation; very obscure words, and derivational forms of words (e.g., “plower -
one who plows; sipper” – one who sips).
   e.g. (ghost) - "/goθ/" 

3. Morpheme omission (MO):
   A Level 2 code applicable to multi-morphemic targets (including compounds). Can only
   be used with target attempts;
   e.g. (cheerleaders) - "cheer" (TA  MO)
   (fireman) - "fire" (TA  MO),

Application of Level 2 codes:
Level 1: Target Attempts must take a Level 2 code
Level 1: Semantic, Mixed, Picture Part may take a Level 2 code
Level 1: Other only takes a Level 2 code only if the response is a non-word (abstruse neologism)
Level 1: Blend or Perseveration can not take a Level 2 code