

Subtle Differences Among Single Up/Down Action Units in the Lower Face

As you study the signs which distinguish among these AUs, examine the images and study the video of each AU in the comparison.

Table 4-1: Subtle Differences in Single Up/Down Lower Face Actions

AUs	Subtle Differences	
9 vs. 10	<p>AU 9 and AU 10 are only difficult to distinguish when there is a weak action of either 9 or 10. One clue is nose wrinkling, which is present in 9 but absent in 10. If the nose wrinkling is merely a horizontal crease at the top of the bridge of the nose, rather than wrinkling on the side indicative of 9, look for evidence of AU 4. If there is brow lowering or pulling together of the brow and no infraorbital triangle raise or change in shape of the upper lip, score as just 4; if there are signs of 10, score as 4+10. Another clue is what happens to the skin that lies above the nasolabial furrow. In a very weak 9 this skin is <u>pulled</u> in towards the bridge of the nose. In a very weak 10 this skin is <u>pushed</u> straight up, and begins to pouch and bulge out.</p> <p>In addition to wrinkling the nose, 9 also raises the upper lip, lifts the infraorbital triangle and deepens the nasolabial furrow making it difficult to see if 10 has acted. If the nose is wrinkled, score 9. Although both AUs lift the upper lip, AU 10 lifts further out from the middle of the lip. AU 10 tends to pull the nostril wings laterally, widening them, but AU 9 lifts them straight up, not changing their width. Also, AU 10 causes a distinctive shape in the nasolabial fold that cannot be done by AU 9.</p>	
10 vs. 15	<p>10</p> <p>infraorbital triangle raise pouching inner corner adjacent and above nostril wing; the infraorbital furrow may wrinkle, or deepen if already evident in neutral</p> <p>upper portion of nasolabial furrow deepens and takes on characteristic 10 shape</p> <p>center of upper lip pulled up, causing corners of lips to appear down</p> <p>absent</p>	<p>15</p> <p>absent</p> <p>may deepen lower portion of nasolabial furrow; no characteristic 10 shape in the upper portion</p> <p>corners of lips pulled down</p> <p>if not a weak action, bagging, wrinkling or pouching below lip corners</p>
15 vs. 17	<p>15</p> <p>lip corners pulled down</p> <p>lip corners elongated downwards</p> <p>if chin boss changes: flatten, stretch or crease; may produce depression medially under the lower lip</p> <p>absent</p> <p>absent</p>	<p>17</p> <p>center of lower lip pushed up, causing lip corners to be lower than the center of the lip</p> <p>little, if any, elongation of lips</p> <p>if chin boss changes: puckered, dimpling, chin boss wrinkling; may produce depression medially under the lower lip</p> <p>lower lip may become narrow in appearance or lower lip may protrude</p> <p>chin boss moves upward</p> <p>If the 15 or 17 action is not weak, pouching, bagging, or wrinkling below lip corners. Note that this appearance change is not the same for both AUs on this clue (see images), but the difference is subtle and hard to describe in words so other signs have been described to distinguish 15 vs. 17.</p>

16 vs. 16+25	Almost always when there is an action of 16, the lips are parted by AUs 25, 25+26 or 25+27. If there is a weak action of 16 and there is surface friction, the lip lowering may not be sufficient to part the lips. In those instances, score as 16 not 16+25 if you saw the movement, see 16secC.	
16+25 vs. 25	<p>16+25</p> <p>lip stretched down and laterally</p> <p>lower gum of front teeth may be revealed</p> <p>skin below lower lip pulled down and laterally;</p> <p>chin boss pushed down.</p>	<p>25</p> <p>lips relaxed</p> <p>absent</p> <p>absent</p>
25 vs. Unilateral 25	Sometimes the criteria for 25 (25B), space between the lips or tooth visibility, are not present across the entire mouth. If the criteria for scoring 25 are present on one side of the philtrum, with at least a <i>trace</i> on the other side, score 25 as bilateral. If the criteria for scoring 25 are present on only one side of the philtrum and are absent on the other side, score unilateral 25. If the criteria for scoring 25 are present only in the center at the philtrum, score bilateral 25. Closed in the center, but meeting the criteria for separation between the lips at one corner with at least a <i>trace</i> at the other corner, is scored bilateral 25.	
25 vs. 26	<p>25</p> <p>absent</p> <p>lips part</p>	<p>26</p> <p>jaw moves down</p> <p>teeth separate as jaw drops by relaxation</p> <p>If uncertain that the lips are parted, do not score 25. If uncertain that the teeth are separated, do not score 26.</p>
26 vs. 27	<p>26</p> <p>jaw drops open by relaxation</p> <p>jaw can drop only a limited amount due to relaxed muscle (not much more than allows the index finger between the teeth)</p> <p>lip corners remain angular, much as they appear when lips are closed</p> <p>time course of jaw dropping is relatively slow</p> <p>If in doubt about whether a limited amount of jaw lowering is 26 or 27, score 26.</p>	<p>27</p> <p>jaw actively pulled open</p> <p>jaw can be stretched quite far open</p> <p>lip corners take on rounded appearance as they are stretched</p> <p>time course for any jaw opening that is no more than can be achieved by 26 must be rapid or jerky to score 27</p>

Subtle Differences Involving Up/Down Actions in the Lower Face

Table 4-3 lists the characteristics that can help you distinguish between sets of Action Units which differ only subtly. Some of these subtle differences are between a single AU and a combination of AUs; some are between two different combinations. Table 4-3 repeats the information given earlier in Table 4-1 about differences between single AUs so that all of this information is compiled in one place.

Study Table 4-3 and examine the relevant images. Use the index to the video material in Appendix I to locate the video comparisons that can be made.

Table 4-3: Subtle Differences in AUs and AU Combinations for Lower Face Up/Down Actions

AUs	Subtle Differences
4+9 vs. 4+10	Confusion can arise because 9 and 10 share the appearance changes of raised upper lip and raised infraorbital triangle. Also, when AU 4 combines with each, then there is brow lowering and usually a crease across the bridge of the nose. To score 4+10, there must not be other nose wrinkles further down the nose or along the sides of the nose, which indicate 9. If such wrinkles are present and the criteria for AU 4 are present, score 4+9. Be certain to check the information under 9 vs. 10 vs. 9+10 in this table below.
4+9 vs. 9	Usually with a 9 the brows are lowered so that you cannot score AU 4 on that basis. Instead, to score 4 in addition to 9 you must see the brows pulled together. (Reread 4secC on page 18 .) Be careful not to score 4 just because there are wrinkles or bulges between the brows, as 9 alone can produce such signs. The brows must be actually pulled together.
4+10 vs. 9	In a <i>slight</i> 9 without 4, there should be no pulling together of the brows, but some evidence of nose wrinkling. In 4+10, the brows may be lowered and/or pulled together, there may be a crease across the bridge of the nose, as well as the raised infraorbital triangle and the characteristic AU 10 shape to the nasolabial furrow. Be certain to check the description of 9 vs. 10 vs. 9+10 below.
6+9 vs. 4+10	The clue to the addition of 6 to 9 is the presence of crow's-feet wrinkles, since both 6 and 9 raise the infraorbital triangle. The Reference for AU 6 said that to score 6 in addition to 9, you must have <i>slight</i> crow's feet wrinkles and cannot use only the infraorbital triangle raise to meet the criteria for 6.
6+10 vs. 7+10	The chief distinction between 6 and 7, infraorbital triangle raise, cannot be used to distinguish 6+10 and 7+10 since 10 raises the infraorbital triangle. The difference between 6+10 and 7+10 is that crow's feet wrinkles are present in the 6+10, but not in 7+10. If 6 is evident on one side of the face and 7 on the other side, score bilateral 6, unless you are scoring actions for asymmetry.
6+10 vs. 10	AU 6 or 10 raises the infraorbital triangle and deepen the infraorbital furrow, but in 6+10 there are also crow's feet wrinkles. To score 6 in the presence of 10, the crow's feet wrinkles must be <i>slight</i> , see 6secC on page 33 .
6+15 vs. 15	The difference is the evidence of AU 6: infraorbital triangle raise, narrowing of eye aperture, crow's feet wrinkles, bags or wrinkles below the eyes, deepening of infraorbital furrow. If you are uncertain whether it is 6+15 or 12+15, see 12+15secC on page 179 for decision procedure.
7+9 vs. 9	With a strong AU 9 it is difficult to see AU 7. With a weaker 9, the 7 is visible in lifting the lower eyelid. Look for tensing and movement of the lower eyelid toward the inner corners of the eyes. Scoring AU 7 with AU 9 can be very difficult and should be done only when absolutely certain.
7+10 vs. 10	In 7+10, the lower lid is raised and tightened, narrowing the eye aperture.
9 vs. 9+17	If the 9 action is strong and the lips remain closed, it is likely that 17 has been recruited. Look for signs of chin boss wrinkling, or lower lip pushed up to meet upper lip or an increased depression medially under the lower lip.

9 vs. 10 vs. 9+10	<p>AU 9 and AU 10 are only difficult to distinguish when there is a weak action of either 9 or 10. One clue is nose wrinkling, which is present in 9 but absent in 10. If the nose wrinkling is merely a horizontal crease at the top of the bridge of the nose, rather than wrinkling on the side indicative of 9, look for evidence of AU 4. If there is brow lowering or pulling together of the brow and no infraorbital triangle raise or change in shape of the upper lip, score as just 4; if there are signs of 10, score as 4+10. Another clue is what happens to the skin that lies above the nasolabial furrow. In a very weak 9 this skin is <u>pulled</u> in towards the bridge of the nose. In a very weak 10 this skin is <u>pushed</u> straight up, and begins to pouch and bulge out.</p> <p>In addition to wrinkling the nose, 9 also raises the upper lip, lifts the infraorbital triangle and deepens the nasolabial furrow making it difficult to see if 10 has acted. If the nose is wrinkled, score 9. Although both AUs lift the upper lip, AU 10 lifts further out from the middle of the lip. AU 10 tends to pull the nostril wings laterally, widening them, but AU 9 lifts them straight up, not changing their width. Also, AU 10 causes a distinctive shape in the nasolabial fold that cannot be done by AU 9. If all these signs are present, score 9+10.</p>	
9+15+17 vs. 9+17	<p>9+17</p> <p>shape of lips show lip corners angled down absent</p>	<p>9+15+17</p> <p>lip corners pulled down by 15 if 15 is strong, pouching, bagging or wrinkling below the lip corners (may be more evident than in 15D or E alone)</p>
9+16+25 vs. 9+25	See entry 16+25 vs. 25 in this table below.	
9+17 vs. 10+17	See entry 9 vs. 10 in this table in this table above.	
9 vs. 9+44	See the entry for 7+9 vs. 9 in this table above.	
10 vs. 10+17	If the 10 action is strong and the lips remain closed, it is likely that 17 has been recruited. Look for signs of chin boss wrinkling, or lower lip being pushed up to meet upper lip as signs of 17.	
10 vs. 15	<p>10</p> <p>infraorbital triangle raise, pouching inner corner adjacent and above nostril wing; the infraorbital furrow may wrinkle, or deepen if already evident in neutral</p> <p>upper portion of nasolabial furrow deepens and takes on characteristic 10 shape</p> <p>center of upper lip pulled up, causing corners of lips to appear down</p> <p>absent</p>	<p>15</p> <p>absent</p> <p>may deepen lower portion of nasolabial furrow; no characteristic 10 shape in the upper portion</p> <p>corners of lips pulled down</p> <p>if not a weak action, bagging, wrinkling or pouching below lip corners</p>
10+15 vs. 10+15+17	If the 10 and 15 actions are strong and the lips are not parted, 17 has probably been recruited or 24 has been added. (In Chapter 7, you will see that 15+24 looks very similar to 15+17.) Look for signs of chin boss wrinkling, or lower lip being pushed up to meet the upper lip as signs of 17.	
10+15+17 vs. 10+17	To score 10+15+17, the lip corners must not only be angled down, but pulled down more than the downward shape due to AU 17. The bagging, pouching, or wrinkling below the lip corners is more evident in 10+15+17 than in 10+17.	

10+15+17 vs. 15+17	The presence of 10 is evident in the raised infraorbital triangle, deepening of the entire nasolabial furrow, which takes on the characteristic 10 shape; infraorbital furrow may wrinkle or deepen if already evident in neutral.	
10+16+25 vs. 10+25	See entry for 16+25 vs. 25 in this table below.	
15 vs. 17	<p>15</p> <p>lip corners pulled down</p> <p>lip corners elongated downwards</p> <p>if chin boss changes: flatten, stretch or crease; may produce depression medially under the lower lip</p> <p>absent</p> <p>absent</p>	<p>17</p> <p>lower lip pushed up, causing lip corners to appear down</p> <p>no elongation of lips</p> <p>if chin boss changes: puckered, dimpling, chin boss wrinkling; may produce depression medially under the lower lip</p> <p>lower lip may become narrow in appearance or lower lip may protrude</p> <p>chin boss moves upward</p> <p>If the 15 or 17 action is not weak, pouching, bagging, or wrinkling below lip corners. Note that this appearance change is not the same for both AUs on this clue (see images), but the difference is subtle and hard to describe in words, so other bases have been described to distinguish 15 vs. 17.</p>
15+17 vs. 17	<p>17</p> <p>lip shape has down turn</p> <p>present in a strong 17, but this sign is not as strong as in 15+17</p> <p>Also see 15 vs. 17 in this table above.</p>	<p>15+17</p> <p>lip shape has down turn, but corners stretched further down by pull of 15</p> <p>pouching, wrinkling or bagging below lip corners more evident than in 17 alone</p>
16 vs. 16+25	Almost always when there is an action of 16, the lips are parted by AUs 25, 25+26, or 25+27. If there is a weak action of 16 and there is surface friction, the lip lowering may not be sufficient to part the lips. In those instances, score as 16 not 16+25 if you see the movement, see 16secC.	
16+17 vs. 17	If 16 has been added to 17, it prevents the usual upward movement of the lower lip as 16 forces it down. The lower lip is stretched laterally by 16. The evidence of 17 is in the raised, lower portion of the chin boss. Although not always present in 16+17, wrinkling in the chin boss is a definite clue that 17 has been added to 16.	
16+25 vs. 16+17+25, or 16 vs. 16+17	When 17 is added to 16 the lower lip is both pulled down by 16 and pushed up by 17. The usual consequence is that the lip is more lowered, as in 16, not pushed up, as in 17, but this depends on the strength of each action. The clues to the addition of 17 are that 17 pushes up the bottom part of the chin boss, usually wrinkling it. Also, there may be some upward push by 17 noticeable in the center of the lower lip. Note that 25 may or may not be present in this combination depending upon the relative strength of 16 and 17.	
16+25 vs. 25	<p>16+25</p> <p>lip stretched down and laterally</p> <p>lower gum of front teeth may be revealed</p> <p>skin below lower lip pulled down and laterally; chin boss pushed down.</p>	<p>25</p> <p>lips relaxed</p> <p>absent</p> <p>absent</p>

25 vs. Unilateral 25	Sometimes the criteria for 25 (25B), space between the lips or tooth visibility, are not present across the entire mouth. If the criteria for scoring 25 are present on one side of the philtrum, with at least a <i>trace</i> on the other side, score 25 as bilateral. If the criteria for scoring 25 are present on only one side of the philtrum and are absent on the other side, score unilateral 25. If the criteria for scoring 25 are present just in the center at the philtrum, score bilateral 25. Closed in the center, but meeting the criteria for separation between the lips at one corner with at least a <i>trace</i> at the other corner, is scored bilateral 25.										
25 vs. 26	<table> <tr> <th>25</th><th>26</th></tr> <tr> <td>absent</td><td>jaw moves down</td></tr> <tr> <td>lips part</td><td>teeth separate as jaw drops by relaxation</td></tr> </table> <p>If uncertain that the lips are parted, do not score 25. If uncertain that the teeth are separated, do not score 26.</p>	25	26	absent	jaw moves down	lips part	teeth separate as jaw drops by relaxation				
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26 vs. 27	<table> <tr> <th>26</th><th>27</th></tr> <tr> <td>jaw drops open by relaxation</td><td>jaw actively pulled open</td></tr> <tr> <td>jaw can drop only a limited amount due to relaxed muscle (not much more than allows the index finger between the teeth)</td><td>jaw can be stretched quite far open</td></tr> <tr> <td>lip corners remain angular, much as they appear when lips are closed</td><td>lip corners take on rounded appearance as they are stretched</td></tr> <tr> <td>time course of jaw dropping is relatively slow</td><td>time course for any jaw opening that is no more than can be achieved by 26 must be rapid or jerky to score 27</td></tr> </table> <p>If in doubt about whether a limited amount of jaw lowering is 26 or 27, score 26.</p>	26	27	jaw drops open by relaxation	jaw actively pulled open	jaw can drop only a limited amount due to relaxed muscle (not much more than allows the index finger between the teeth)	jaw can be stretched quite far open	lip corners remain angular, much as they appear when lips are closed	lip corners take on rounded appearance as they are stretched	time course of jaw dropping is relatively slow	time course for any jaw opening that is no more than can be achieved by 26 must be rapid or jerky to score 27
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Alternative Rules Involving Up/Down Actions

Table 4-4 shows the alternate scores for Up/Down actions. If needed, review the discussion of alternatives in Chapter 1 on [page 11](#).

Table 4-4 Summary of Alternative Rules

Alternatives	Rationale
26 @ 27	If the jaw closing muscle is relaxing to drop the jaw open in 26, then the mouth cannot be stretched open by the jaw being pulled down by 27. Even though the jaw closing muscle may relax when 27 occurs, 26 is not scored with 27.