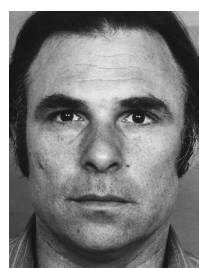

Action Unit Combination 4+5

A. Appearance Changes due to AU Combination 4+5

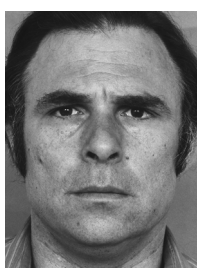
The elements described separately for AUs 4 and 5 combine, modifying the appearance changes due to AU 4 alone or AU 5 alone. The modified changes involve the appearance of the eye aperture, the upper eyelid and the amount of sclera exposed.

1. Lowers the inner and central portions of the eyebrow.
2. Pulls the eyebrows closer together.
3. Produces vertical wrinkles between the eyebrows. In some people the wrinkles between the eyebrows may not be vertical but at a 45 degree angle, or both angled and vertical. May also produce one or more horizontal wrinkles at the root of the nose. If the vertical, angled, or horizontal wrinkles are permanently etched, they deepen.
4. The eye cover fold is pushed downwards by AU 4 and may narrow the eye aperture, while AU 5 widens the eye aperture. The resulting eye aperture from these opposing actions is a compromise between the two actions.
5. May produce a wrinkle or muscle bulge running from the middle of the forehead above the middle of the eyebrow down to the inner corner of the brow, or a series of rippling bulges above and medial to the eyebrow center.
6. Raises the upper eyelid so that some or all of the upper eyelid may disappear. In some people the upper eyelid disappears solely with the action of AU 4. In some people the upper eyelid is not visible when their face is neutral.
7. In some people, AU 5 exposes the sclera above the iris. In others, the sclera does not show due to the lowering action of AU 4.
8. May change the shape of the upper eye rim as some part of the upper lid is pulled up by AU 5 exposing sclera adjacent to the iris.
9. The combination of appearance changes 7 and 8 and the pressure of AU 5 upwards against the downward push of AU 4 gives the appearance of a harsh stare.
10. If the appearance changes for AU 4 are bilateral, but for AU 5 are evident on only one eye, it is not scored as a unilateral action, but as a bilateral 4+5.

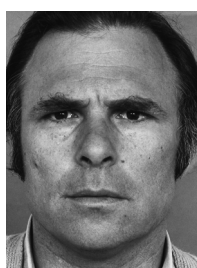
Compare image 4+5 with images 4i, 4ii, and 5 and image w4+5 with images w4, w5i, and w5ii. Also inspect the video of 4+5. The video depictions begin with 4 already evident. Many of the other video depictions of AU combinations begin with one of the AUs already on the face.



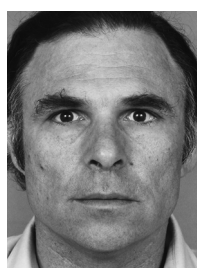
0 [page 465](#)
[page 381](#) for score



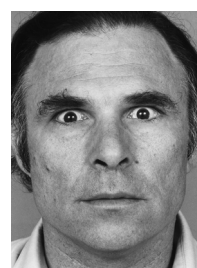
4i [page 466](#)
[page 382](#) for score



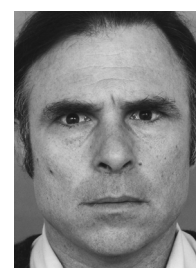
4ii [page 466](#)
[page 382](#) for score



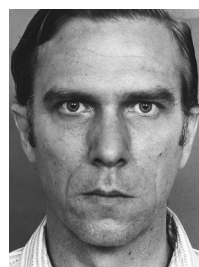
5i [page 467](#)
[page 383](#) for score



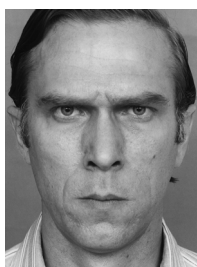
5ii [page 467](#)
[page 383](#) for score



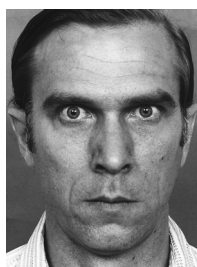
4+5 [page 470](#)
[page 386](#) for score



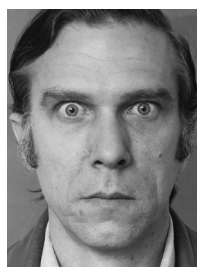
w0 [page 465](#)
[page 382](#) for score



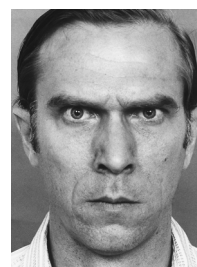
w4 [page 465](#)
[page 382](#) for score



w5i [page 467](#)
[page 383](#) for score



w5ii [page 467](#)
[page 384](#) for score



w4+5 [page 470](#)
[page 386](#) for score



video 4+5
[page 415](#) for score

B. How to do AU Combination 4+5

Follow the instructions for each Action Unit separately and do them together. For convenience, the instructions for each AU are repeated below. Try doing AU 4 first, then add AU 5. Push the eyelid up with AU 5 as hard as you can against AU 4 and notice the change in the shape of the upper eyelid and eye cover fold. Notice the change in the appearance of the eye in terms of harsh, staring, bulging quality.

AU 4 (repeated from [page 18](#)): This movement is easy for most people to do. Lower your eyebrows and pull them together. Try not to wrinkle your nose (if your nose is wrinkling, you are doing AU 9). If you are unable to make this movement so it looks like 4i or 4ii, turn to the description of AU 9 on [page 93](#). Make the nose wrinkling movement of AU 9, and watch what happens to your eyebrows. Notice that they come down and together. Now try to move your eyebrows without moving AU 9. Alternatively, imagine yourself puzzled with a problem that you can't figure out; you may make AU 4. If you are still unable to make this movement, use your fingers to push the skin on your face so you look like 4ii. Then try to hold that appearance when you take your fingers away.

AU 5 (repeated from [page 25](#)): This movement is easy. Raise your upper eyelid as hard as you can so you can feel it pushing upwards against your eye cover fold. Observe whether or not sclera is exposed. If you have any difficulty, just try to open your eyes as wide as you can, increasing your field of vision and bulging your eyes. Try to do a weak version.

C. Intensity Scoring for AU Combination 4+5

The intensity criteria for AU 4 in the combination 4+5 are unchanged from AU 4 alone. The criteria for AU 5 in the combination 4+5 are altered significantly since many of those changes are concealed by AU 4. If AU 4 is present, it lowers the eye cover fold so that the top part of the eyeball is less visible than in the neutral face (compare images 4 and 0, w4 and

w0). Adding AU 5 to AU 4 counteracts the downward push by 4 on the eye cover fold as 5 pushes the upper lid up against it. You can recognize the addition of AU 5 to AU 4 by observing that the top of the eyeball is not as covered as it would be from the influence of AU 4's action alone, but instead has about as much exposure as the neutral version. The net effect of the opposite influence of AUs 4 and 5 on the eye cover fold is that when the intensities of the two actions units are roughly equal, about as much shows of the top part of the eye in 4+5 as in the neutral face (compare 4+5 with 0 and w4+5 with w0). When the intensity of AU 4 is greater than the intensity of AU 5, the eye cover fold is pushed down to cover the upper eyeball more. When the intensity of AU 5 is greater than the intensity of AU 4, the eye cover fold is moved up to reveal the upper eyeball more.

In the criteria below, the intensity scoring of AU 5 is described for combinations in which the intensity of AU 4 is roughly equal. Of course, any combination of the intensities of AUs 4 and 5 might occur in the combination of 4+5, and the determination of their intensity scores depends upon your evaluation of the balance of effects contributed by AUs 4 and 5. Start by scoring the intensity of AU 4, then decide how intense the action of AU 5 must be to produce the appearance you see. A difficulty in scoring AU 5 with higher intensities of AU 4 is that the AU 4 pushes the skin of the brow so low that it sometimes obscures the view of signs of AU 5, especially for people with deeper set eyes. In this case, you must rely on what signs of AU 5 you are able to see, especially the changes in the exposure of the iris and the staring quality of the eye, and extrapolate from them to infer the intensity of AU 5.

The intensity criteria for AU 4 in combination 4+5 are unchanged from AU 4 alone and are repeated below.²

AU 4A

The appearance changes for AU 4 are sufficiently present to indicate AU 4, but are insufficient to score 4B (e.g., a *trace* of brow lowering and/or a *trace* of pulling together).

AU 4B

1. Inner and/or central portion of brow lowered *slightly*, pushing down or reducing visibility of medial portion of eye cover fold.
or
2. Brows pulled together *slightly*; if you do not see the movement, you must see a wrinkle or muscle bulge between brows. If a wrinkle or muscle bulge is permanent (in the neutral face), it must increase *slightly*.

AU 4C

Both the brow lowering and pulling together of the criteria for 4B are present and at least one is *marked*, e.g., one step greater than *slight*, but the evidence is less than the criteria for 4D.

AU 4D

Both the brow lowering and pulling together of the criteria for 4B are present and at least one is *severe*, but the evidence is less than the criteria for 4E.

AU 4E

Brow pulling together or lowering is *maximum*.

The criteria for AU 5 in the combination 4+5 presented below are altered significantly from 5 alone.

2. Section C in the descriptions of AU combinations repeats for convenience in scoring the intensity guidelines for AUs that do not change from the AU in isolation. Revised intensity guidelines are also presented. You can immediately tell the difference between the repeated versus the changed criteria from the headings for each intensity. The changed criteria include the phrase "in AU Combination" followed by the combination under discussion, because these criteria are specific to that combination. The heading for the unchanged criteria simply lists the AU described.

AU 5A in AU Combination 4A+5A

The Appearance Changes for AU 5 in 4+5 are sufficiently present to indicate AU 5, but are insufficient to score 5B in 4+5 (e.g., a *trace* of staring quality). Because a 4A may have relatively little effect on the eye cover fold, it may be easier to see the action of 5 in the presence of 4A than when AU 4 is stronger.

AU 5B in AU Combination 4B+5B

1. The top of the iris is revealed about as it usually is.
and
2. There is a *slight* harsh staring or bulging quality to the eye, due to *slight* changes in the amount of sclera exposed adjacent to the iris.
3. If sclera shows that does not show in neutral, you can score 4+5. If sclera does not show, signs 1 and 2 are sufficient to score 4B+5B. If sclera shows in the neutral face, it must increase *slightly*.

AU 5C in AU Combination 4C+5C

1. The top of the iris is revealed slightly more than it is in neutral, and the line of the eyelid is *markedly* affected by the opposition of AUs 4 and 5.
and
2. The harsh staring or bulging quality to the eye is *marked*, due to changes in the amount of sclera exposed adjacent to the iris or to bulging of the eyeball.

AU 5D in AU Combination 4D+5D

1. The top of the iris is revealed at least severely more or a hair line of sclera is visible, and the shape of the line of the upper eyelid is *severely* affected by the opposition of AUs 4 and 5, which produces much tension.
and
2. The harsh staring or bulging quality to the eye is *severe*, due to changes in the amount of sclera exposed adjacent to the iris.

AU 5E in AU Combination 4E+5E

If the view of the eyeball is clear, more than a hairline of sclera is exposed above the iris, and a harsh staring or bulging quality to the eye is readily apparent and near *maximum*. If the brow hides the view of the upper lid you have to extrapolate the position of the eyelid by observing the iris that you can see to infer the strength of AU 5. In some Asian and other faces, sclera is never be seen above the iris even at high intensity, so you must calibrate the maximum raising of the eyelid to what appears to be the maximum amount of iris exposed.

See the Reference for AU 5 on [page 26](#) for other combinations that include 4+5 where these same criteria for scoring the intensity of AU 5 apply.