n - corrective factor for variation in size of palpebral fissure:

0.375 for large fissure (11 mm and up)

0.25 for medium fissure (9 mm to 11 mm)

0.125 for small fissure (9 mm and under)

B - 0.3 mm size reduction for stable plastic
1.00 - standard deviation
1.50 - standard deviation
C - corneal height, mm.
F - palpebral fissure, mm.
t - amount of truncation of lens = 05 mm
a - lid position relative to limbal = −0.1 mm/mm above limbal = 0 if on limbal = +0.1 mm/mm if below limbal.

Assume a measurement of the palpebral fissure height F, corneal height C, and lower lid up-ride X on the limbal gave:

$$F = 7 \text{ mm}$$

$$C = 11 \text{ mm}$$

$$X = 0$$

then $y = C\text{–}F = 11\text{–}7 = 4$ mm and $n = 0.125$ since the palpebral fissure is small.

Plugging into the formula:

1. for single vision or central bifocal lens:

a. $D = 2/3\ C + [1.00 - (ny + X+B)\ ] = 2/3\ (11) + [1.00 - (0.125\ (4) + 0 + 0.3)\ ] = 7.332 + [\ 1.00 - 0.8] = 7.532$ mm

b. $E = 2/3C + [0.150 - (ny + X+B)\ ] = 2/3\ (11) + [1.50 - (0.125\ (4) + 0 + 0.3)\ ] = 7.332 + [1.50 - 0.8] = 8.032$ mm

c. $A = (D+E)/2 = (7.532 + 8.032)/2 = 7.782$ mm

2. for prism ballast bifocal lens:

d. $R = A + 0.50 = 7.782 + 0.50 = 8.282$ where 0.50 = increase in lens size, mm.

e. $Z = (R/2) - (t+a) = (8.282/2) - (0.5 + 0) = 3.64.$ mm

The several embodiments described and the specific example given are by way of illustration only and are not intended to be restrictive, other and various modifications as would be apparent to a person having ordinary skill in the art being possible without departing from the spirit of the invention or the scope of the appended claims.

I claim:

1. A bifocal corneal contact lens to be worn on the cornea of a human eye, comprising a thin circular lens body having a near viewing segment fused in the center of one surface thereof and a surrounding distance viewing portion, the near viewing segment and the distance viewing portion having the same principal optical axis, the lens having a thickness within the range of 0.1016 mm to 0.7721 mm, said near viewing segment made of a plastic material having an index of refraction greater than the distance viewing portion and a near focal point spaced rearwardly of the lens, the distance viewing portion having an index of refraction less than the near viewing segment and a distance focal point spaced rearwardly of the near focal point, the near viewing segment having a diameter within the range of 0.1 to 0.3 mm less than the near point pupil size of the eye under an active state of near accommodation and the near viewing segment having a very long depth of focus, said near viewing segment further having a power equal to the exact refractive add of the eye and being uncorrected for the tear layer of the eye on which the lens is to be worn, the focal points of the distance viewing portion of the lens and the near viewing segment being closely adjacent one to the other, the far limit of the near viewing segment spaced farther from the lens than the near limit of the distance viewing portion with the near focal point and the distance focal point overlapping and coacting one with the other, the image rays uninterruptedly focused by the lens throughout the distance from the near limit of the near viewing segment to the far limit of the distance viewing portion, and there being clear uninterrupted vision throughout the entire focal range of the lens.

2. A plastic bifocal corneal contact lens to be worn on the cornea of a human eye, wherein the lens comprises a thin, circular, plastic lens body with a concave posterior surface and a convex anterior surface, a plastic near viewing segment fused in the center of the posterior surface, an annular distance viewing portion surrounding the near viewing segment, the near viewing segment and the distance viewing portion having the same principal optical axis, the thickness of the lens at the center thereof, including the near viewing segment and the adjacent part of the lens is 0.15 mm, the index of refraction of said plastic near viewing segment is greater than the index of refraction of the plastic distance viewing portion and the near viewing segment has a near focal point with a near limit and a far limit and spaced rearwardly of the lens, the distance viewing portion has a distance focal point with a near limit and a far limit and spaced rearwardly of the near focal point, the diameter of the near viewing segment is 2.6 mm and is less than the near point pupil size of the eye under an active state of near accommodation and the near viewing segment has a substantial depth of focus, the power of said near viewing segment is equal to the exact refractive add of the eye for near vision and thus eliminates correcting for the tear layer of the eye on which the lens is to be worn, said lens has a near point power less than three times as great as the distance viewing power, the far limit of the near viewing segment spaced farther from the lens than the near limit of the distance viewing portion, the near focal point and the distance focal point overlapping at a minor portion of adjacent ends thereof and coacting one with the other to define a single, composite focal area including the overlapped part, the image rays uninterruptedly focused by the lens throughout the single, composite focal area from the near limit of the near viewing segment to the far limit of the distance viewing portion.

3. A plastic bifocal corneal contact lens to be worn on the cornea of a human eye, wherein, the lens comprises a thin, circular plastic lens body and a concave posterior surface and a convex anterior surface, a circular plastic near viewing segment fused in the center of the posterior surface, an annular distance viewing portion surrounding the near viewing segment, the near viewing segment and the distance viewing portion having the same principal optical axis, the thickness of the lens at the center thereof at the near viewing segment is 0.15 mm, the index of refraction of said near viewing plastic segment is about 1.57 and the index of refrac-