

MULTIFOKÁLNÍ BRÝLOVÉ ČOČKY

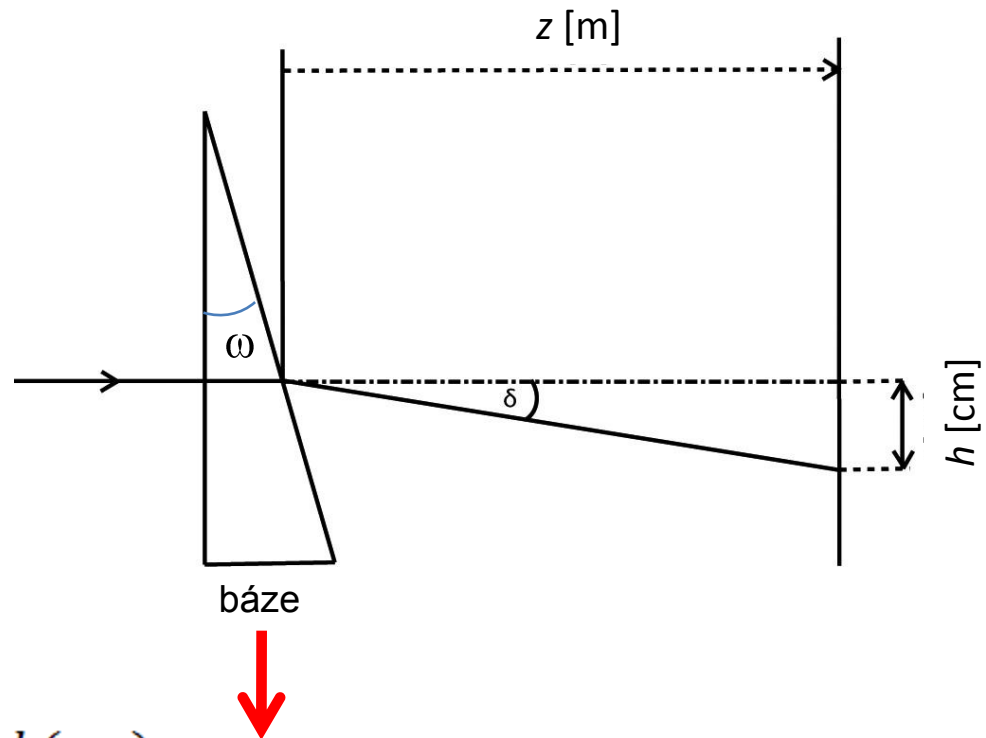
Prizmatický účinek

deviace

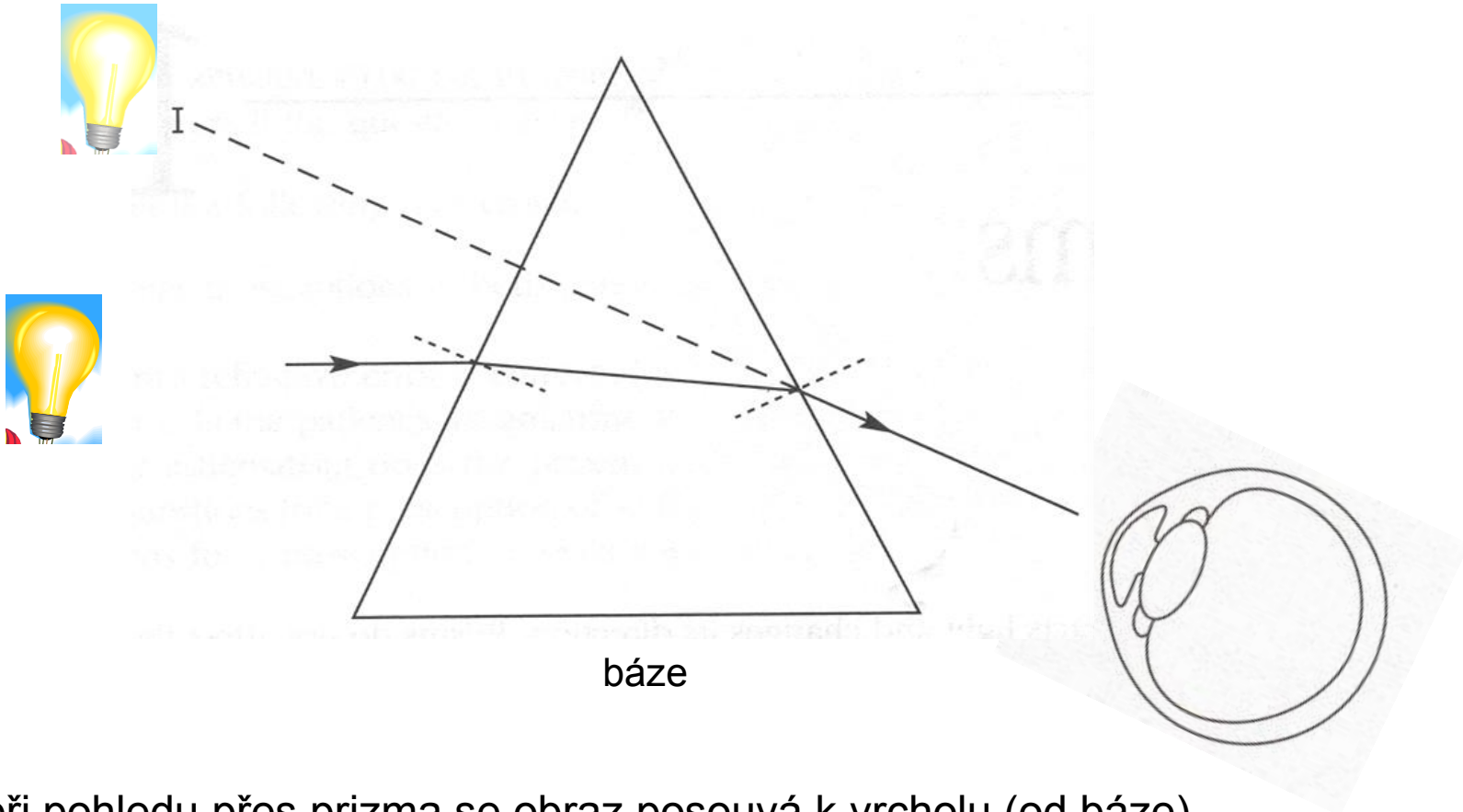
$$\delta = (n - 1)\omega$$

prizmatický účinek

$$\Delta \text{ (pD)} = 100 \frac{h(\text{m})}{z(\text{m})} = 100 \text{tg}\delta = \frac{h(\text{cm})}{z(\text{m})}$$

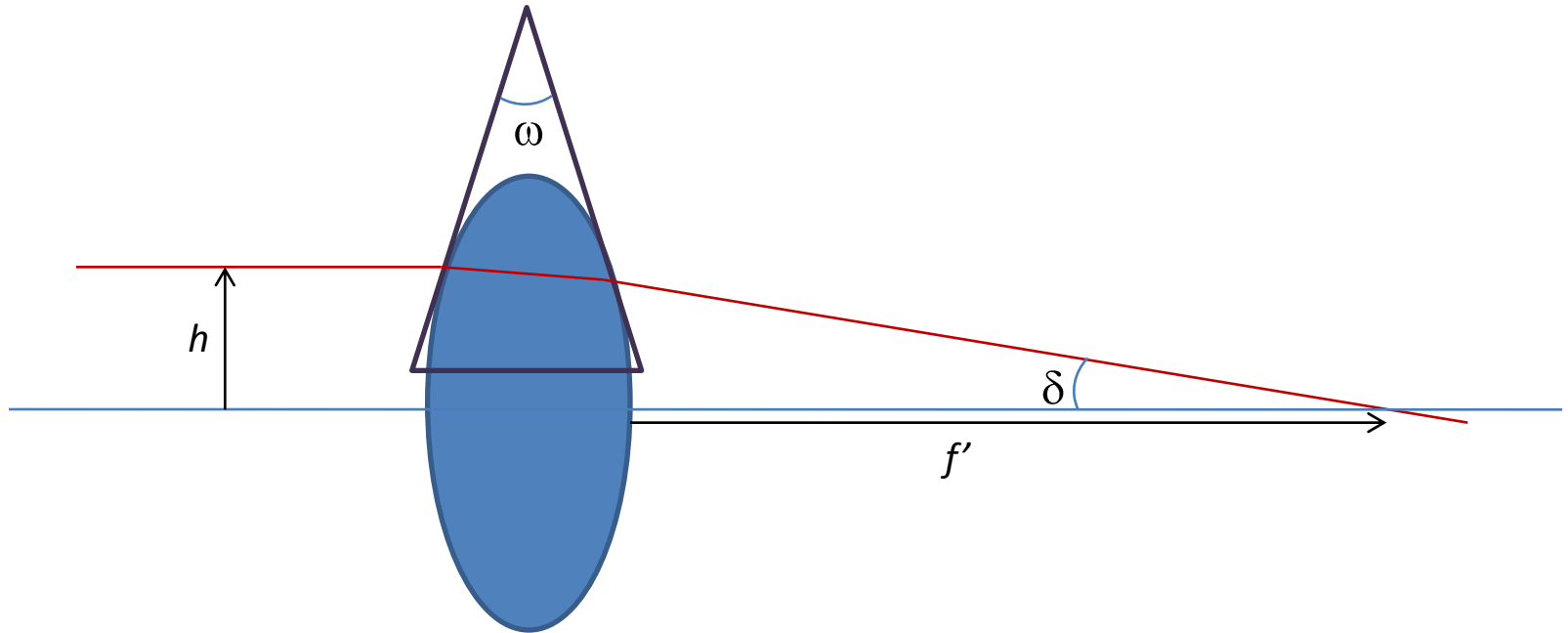


Prizmatický účinek



při pohledu přes prizma se obraz posouvá k vrcholu (od báze)

Prizmatický účinek čočky

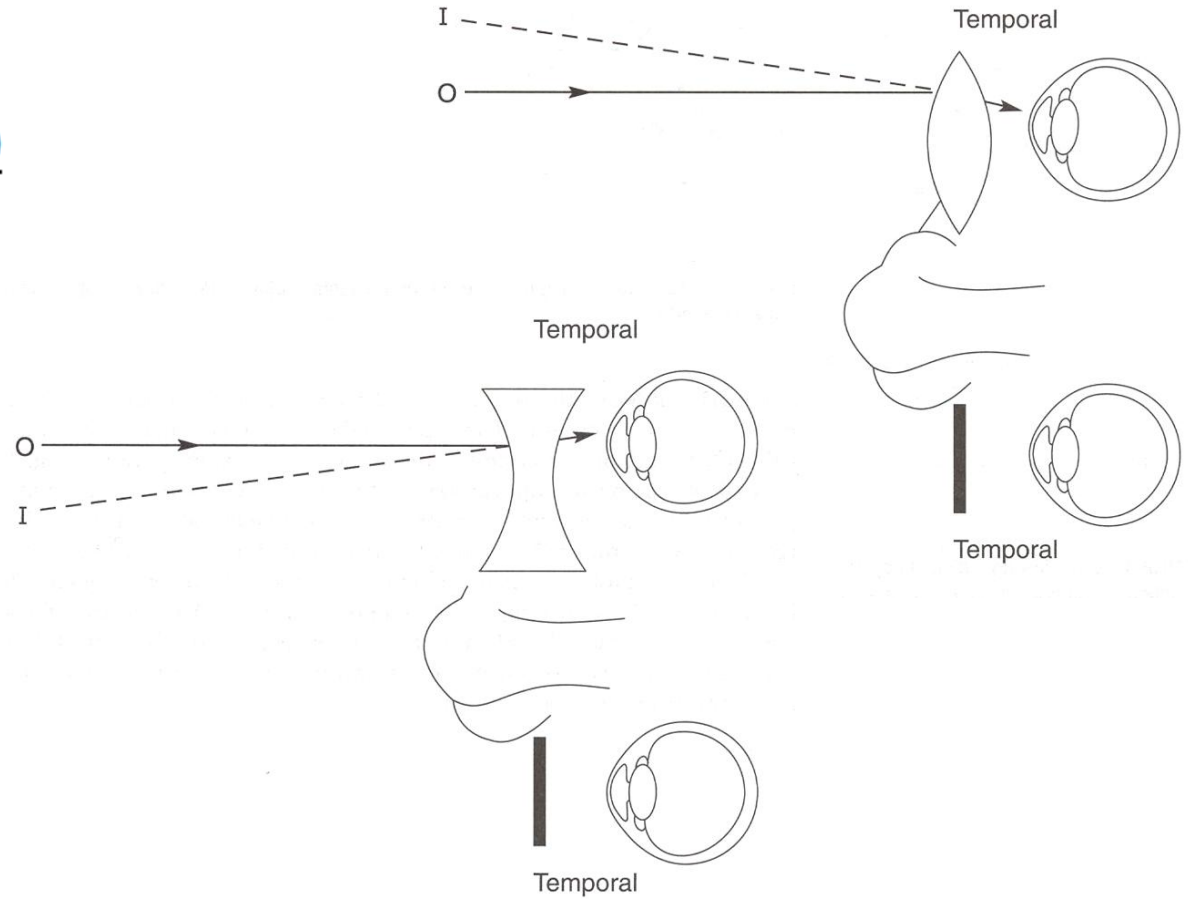
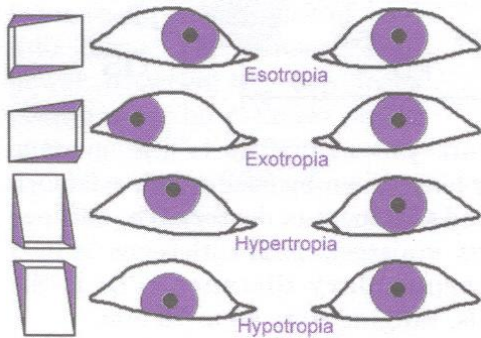


$$\Delta \text{ (pD)} = 100 \operatorname{tg} \delta = 100 \frac{h(\text{m})}{f'(\text{m})} = 100 h(\text{m}) \varphi'_c(\text{D}) = h(\text{cm}) \varphi'_c(\text{D})$$

„Prenticeho pravidlo“ (Prentice's rule)

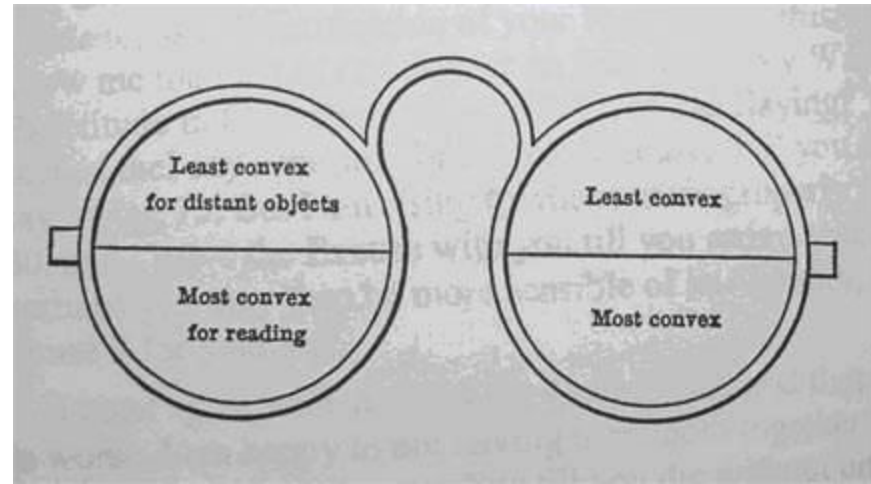
Prizmatický účinek čočky

$$\Delta \text{ (pD)} = \frac{\text{dec (mm)} \varphi'_c \text{ (D)}}{10}$$



Vynález bifokálních čoček

Benjamin Franklin

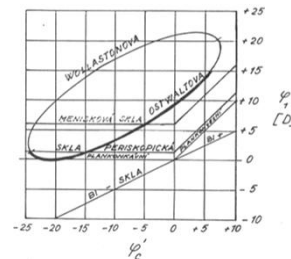
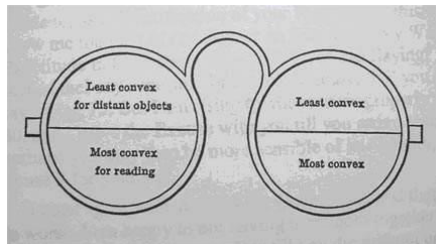
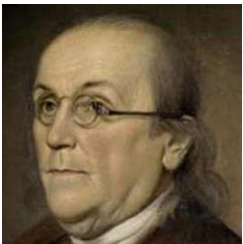


nákres z dopisu – knihovna kongresu

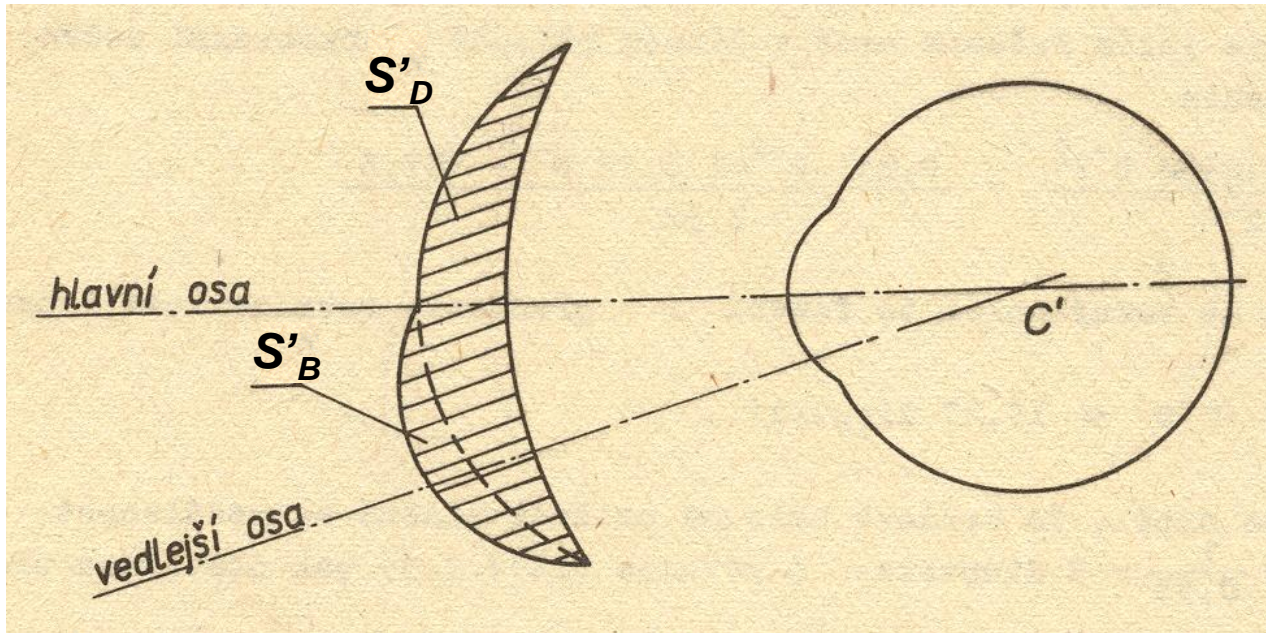
A handwritten signature in cursive script, reading "B. Franklin". The signature is written in black ink and has a long, sweeping underline.

Požadavky na bifokální čočky

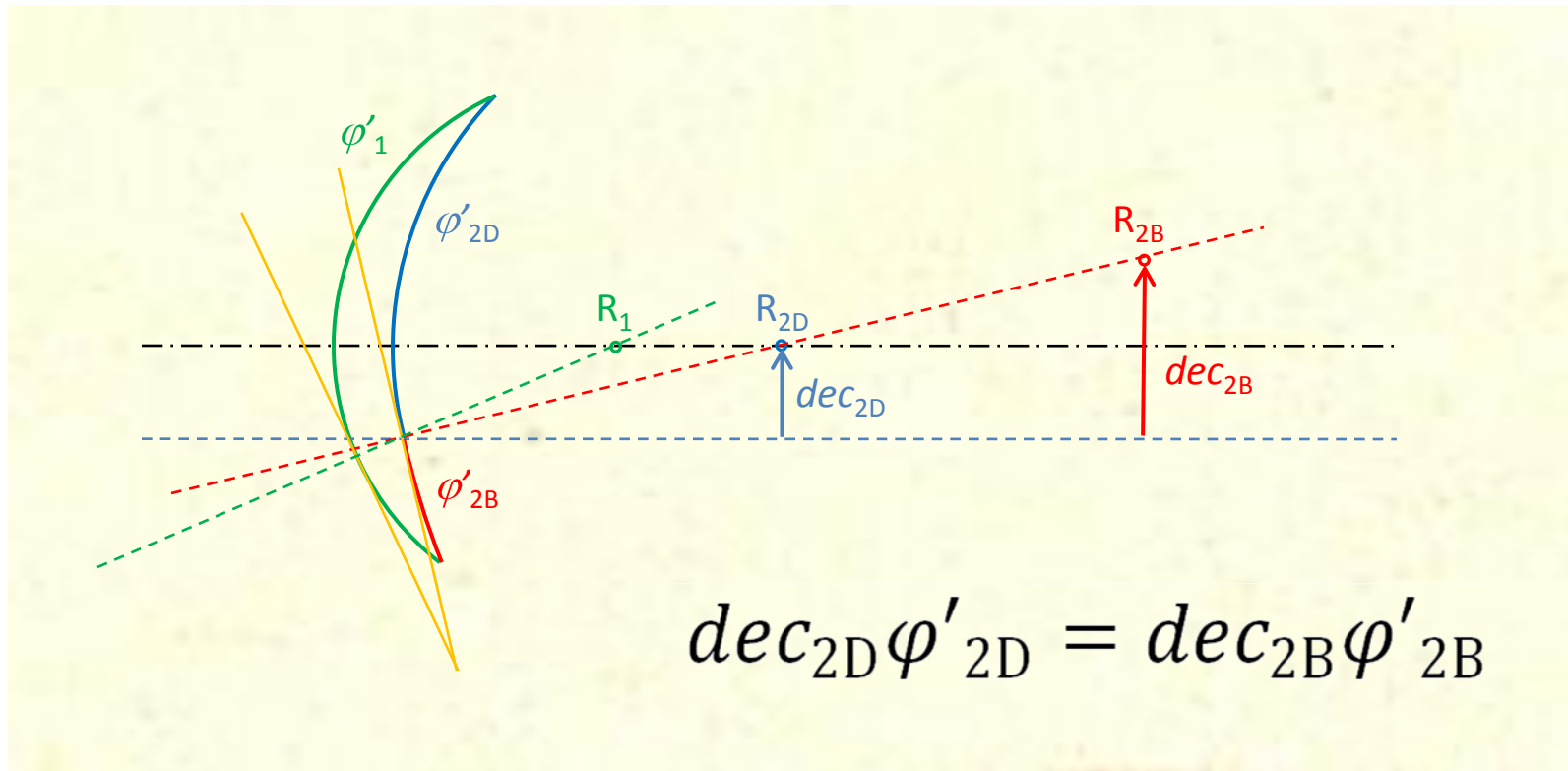
- Řádné centrování obou dílů vůči oku (optické osy procházejí středem otáčení oka).
- Korekce periferního astigmatismu obou dílů (bodově zobrazující čočky).
- Odstranění „skoku obrazu“ na předělu (shodný prizmatický účinek na předělu).
- Vhodné provedení z hygienického a estetického hlediska (bez vroubku).



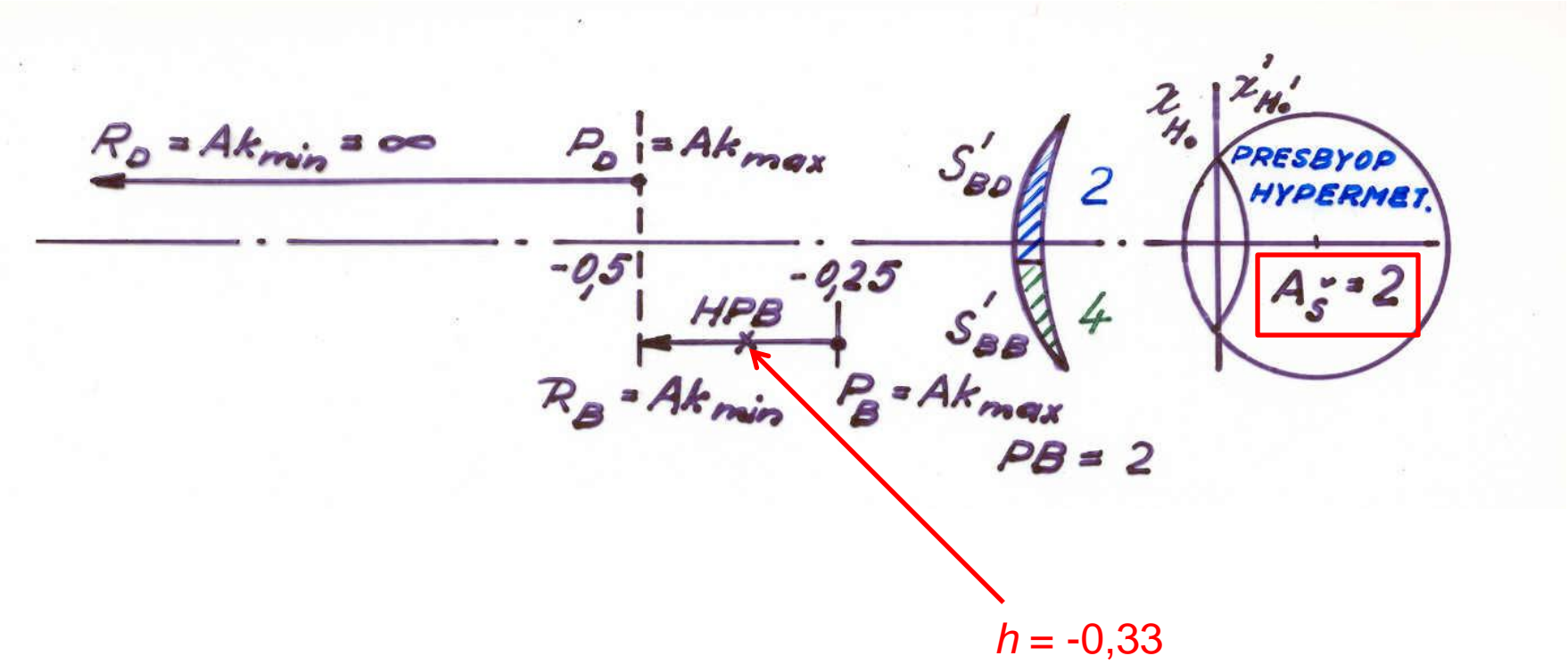
Centrování dílů bifokální čočky



Skok obrazu u vybrušované bifokální čočky

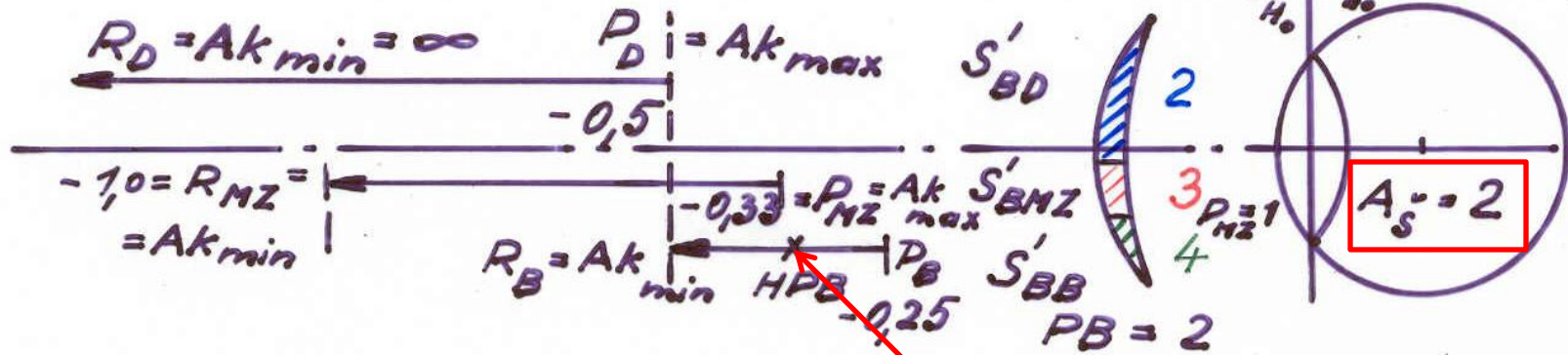


Akomodační intervaly pro bifokální čočku



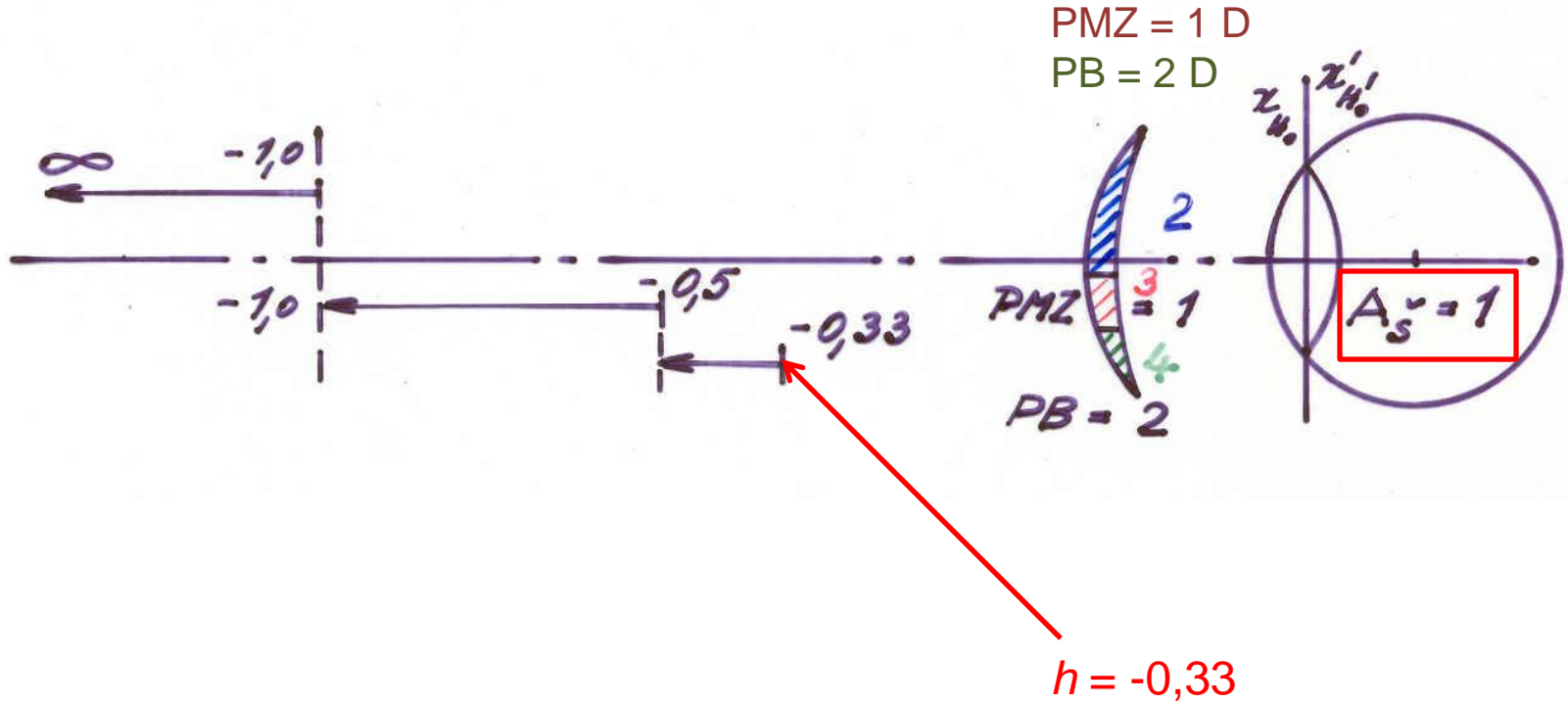
Akomodační intervaly pro trifokální čočku

PMZ = 1 D
PB = 2 D

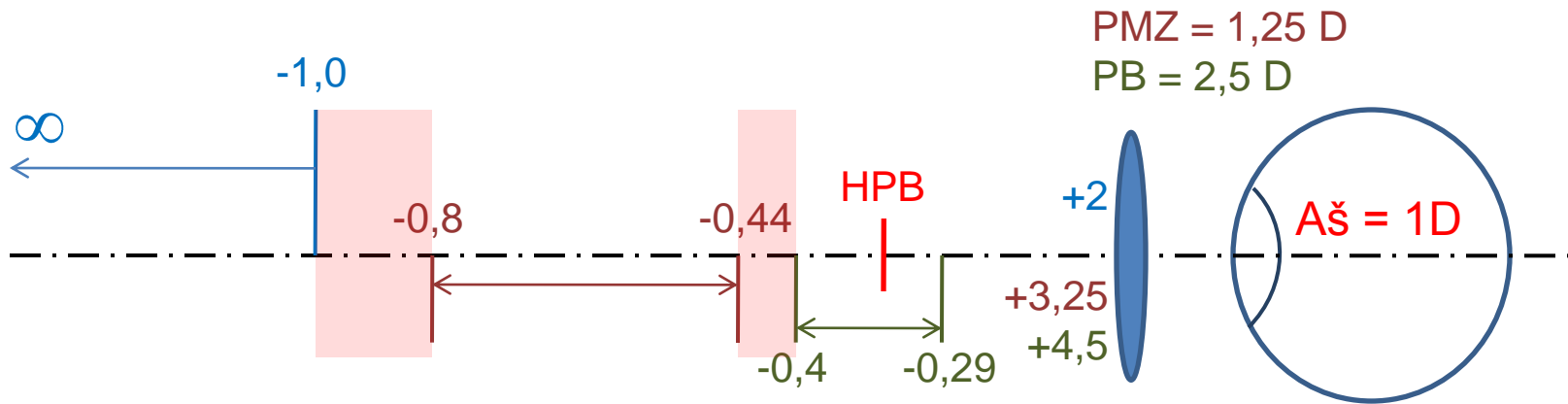


$h = -0,33$

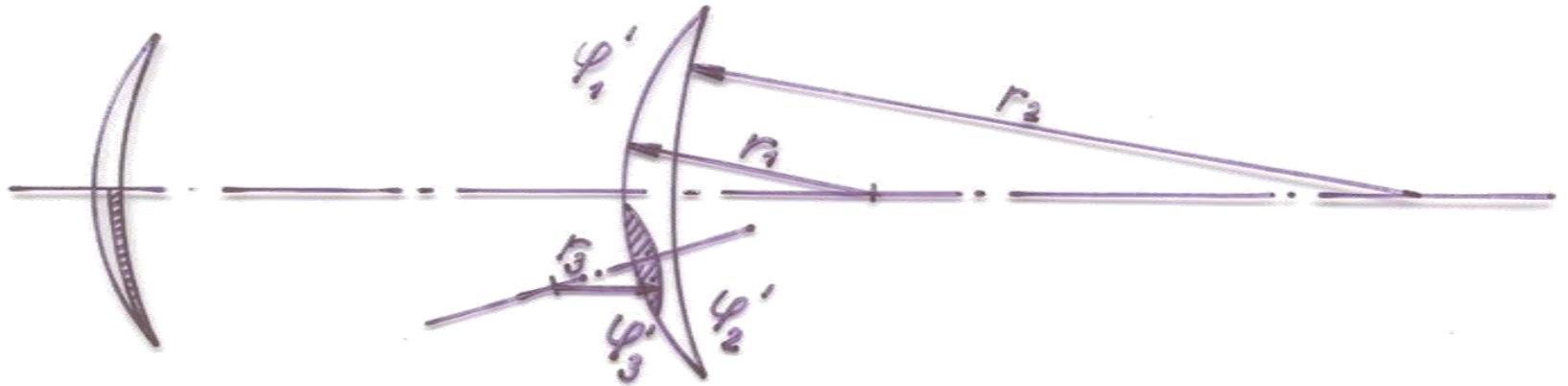
Pokles akomodační šíře na +1D



Zvýšení přídavku do blízka na +2,5 D



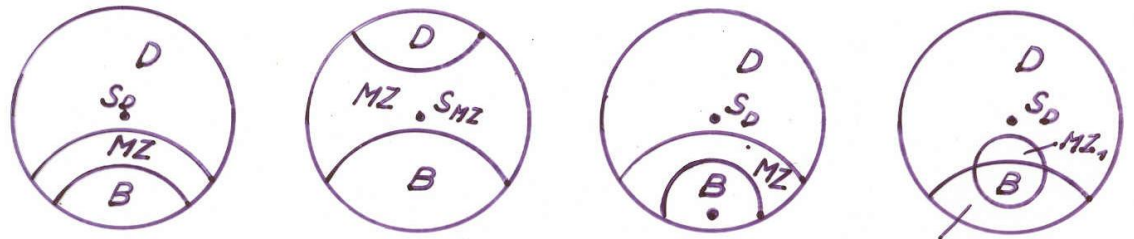
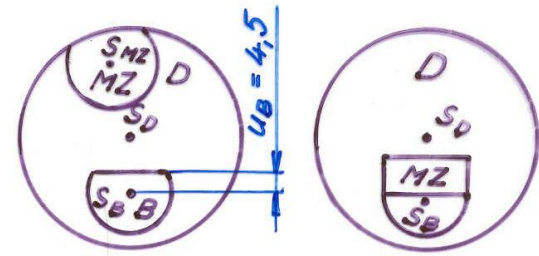
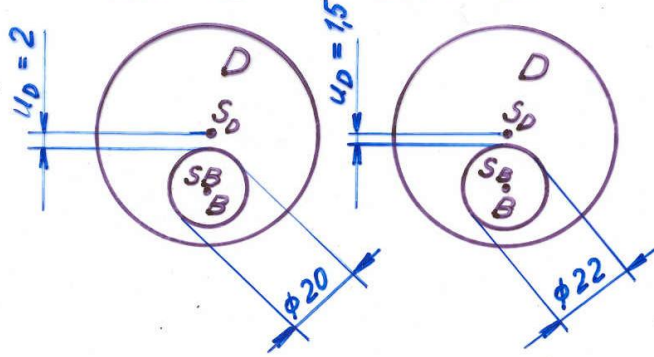
Zatavované bifokální čočky



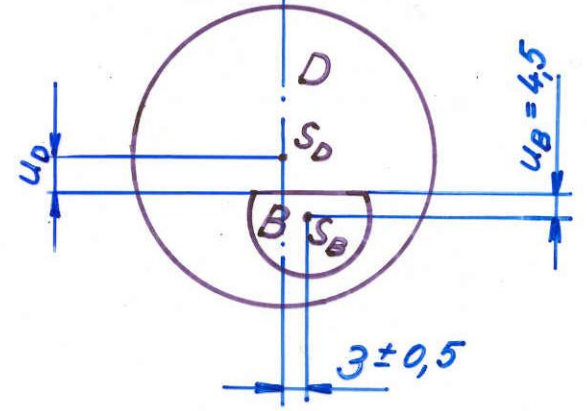
Příklady bifokálních čoček

DUOPAL

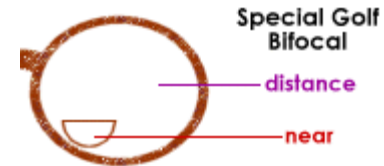
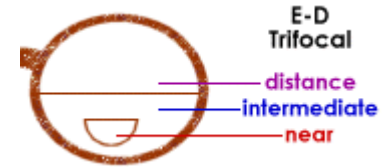
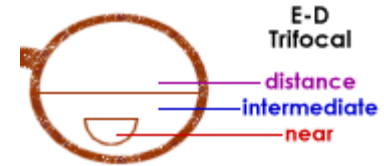
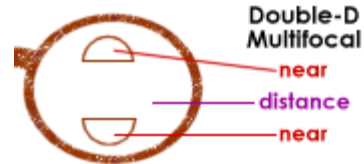
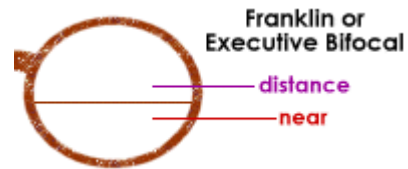
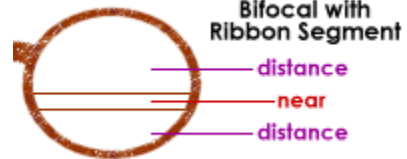
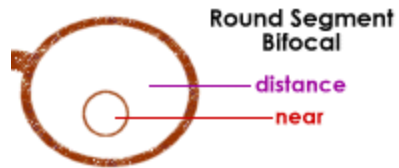
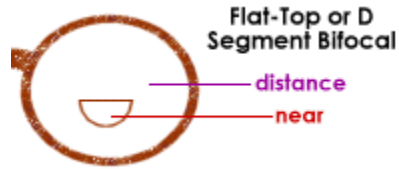
BONOVISTA



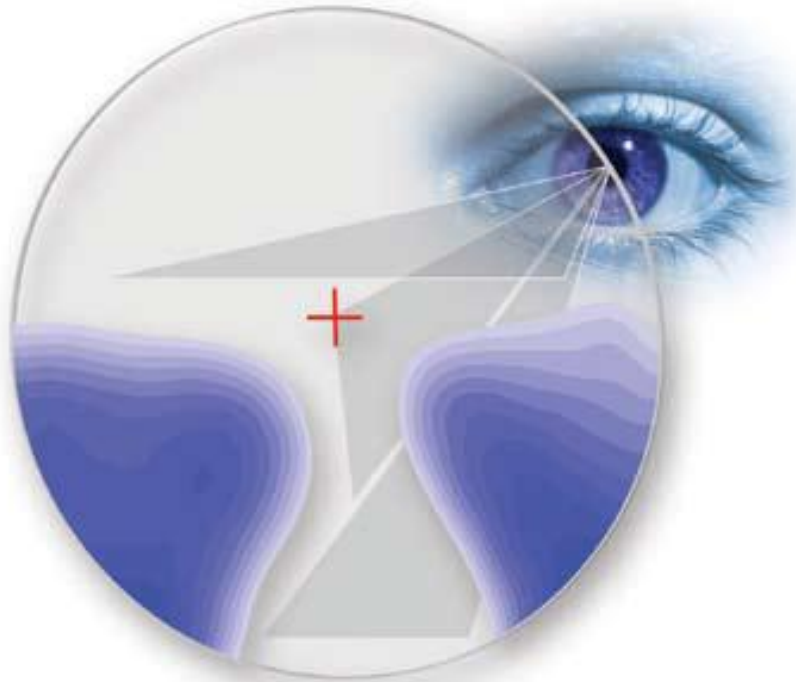
STRALUX eSTěčko



Příklady bifokálních čoček



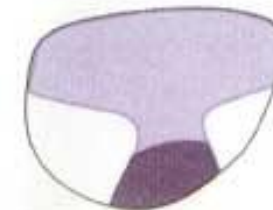
Příklad progresivní čočky



zorné pole do dálky
od 5 m dál

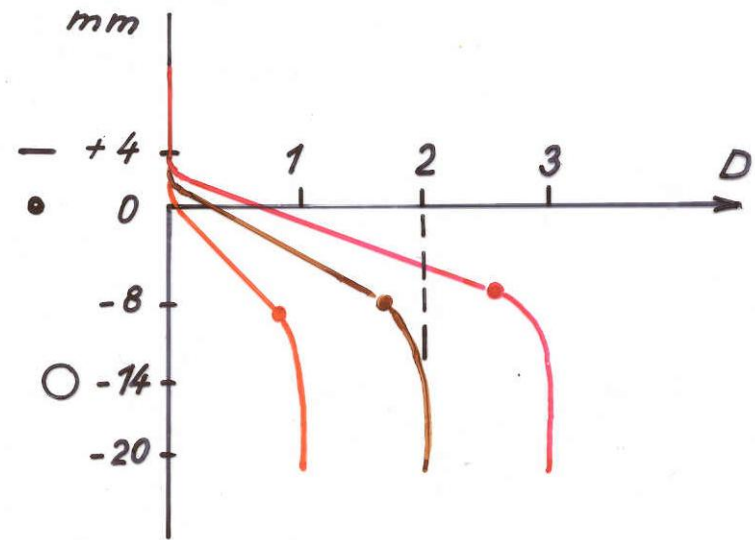
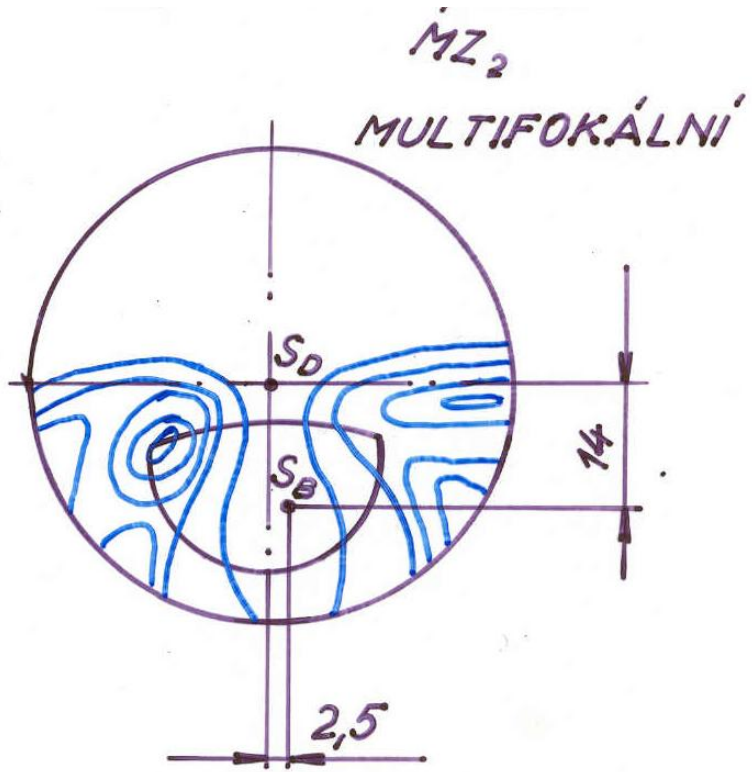


progresivní kanál -
zorné pole na pracovní
vzdálenost 40 cm - 5 m



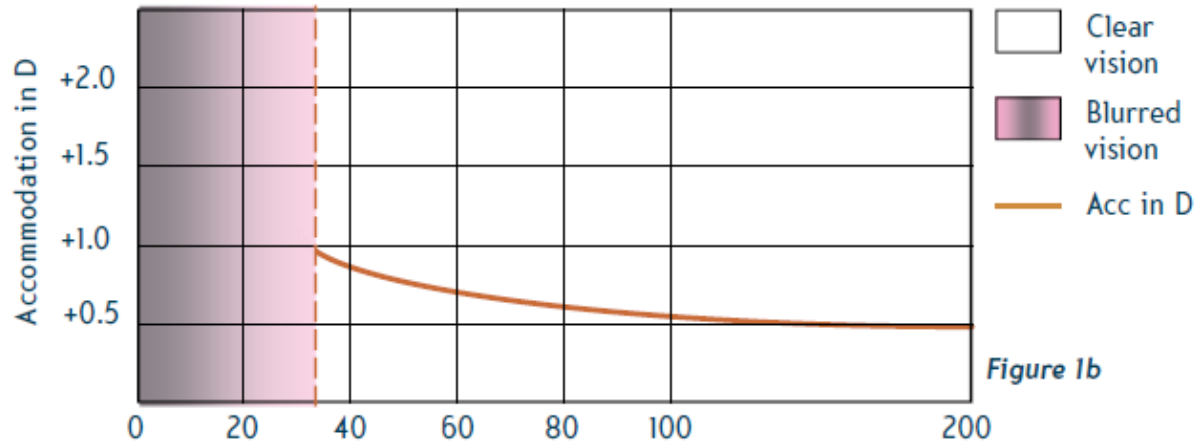
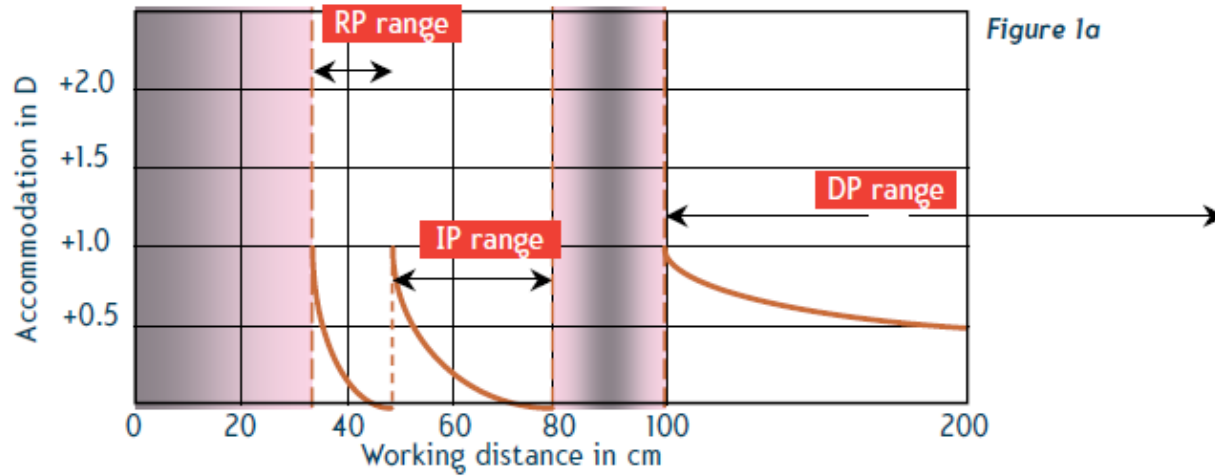
zorné pole do blízka
do 40 cm

Progresivní čočky



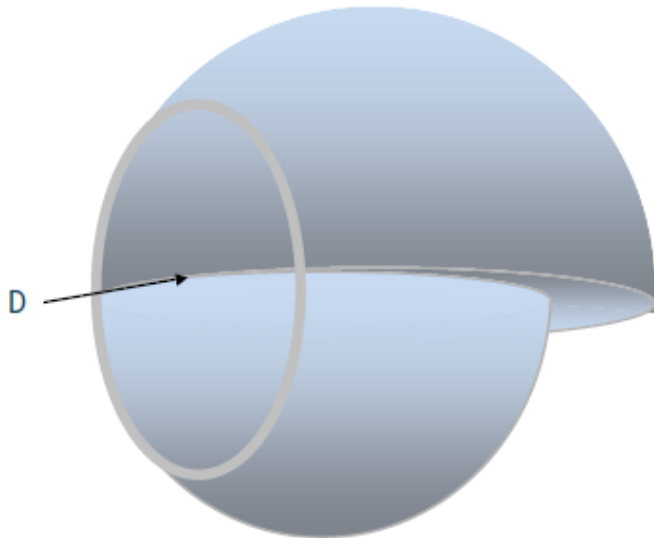
(Varilux comfort)

Progresivní čočky

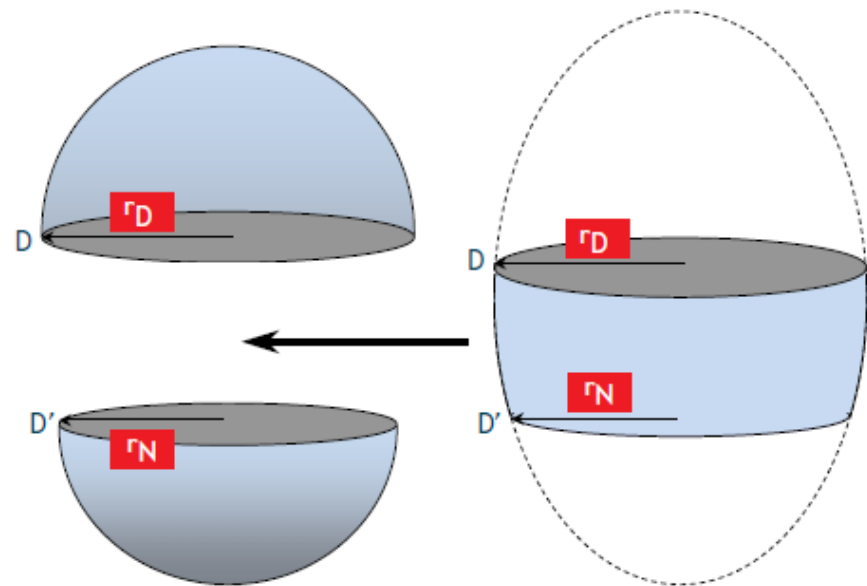


Progresivní čočky

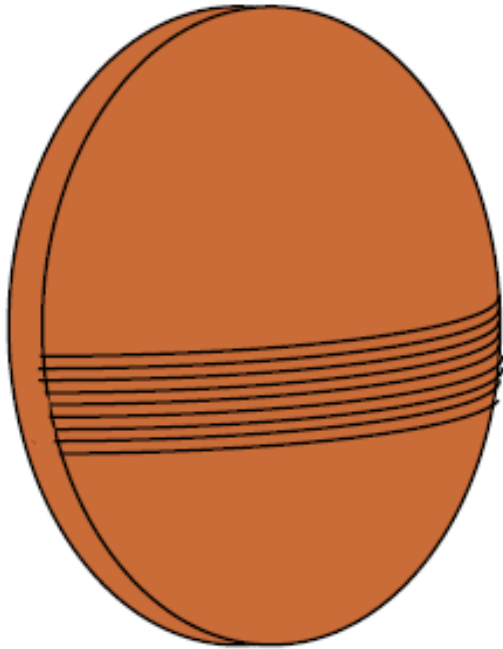
Spherical DP surface



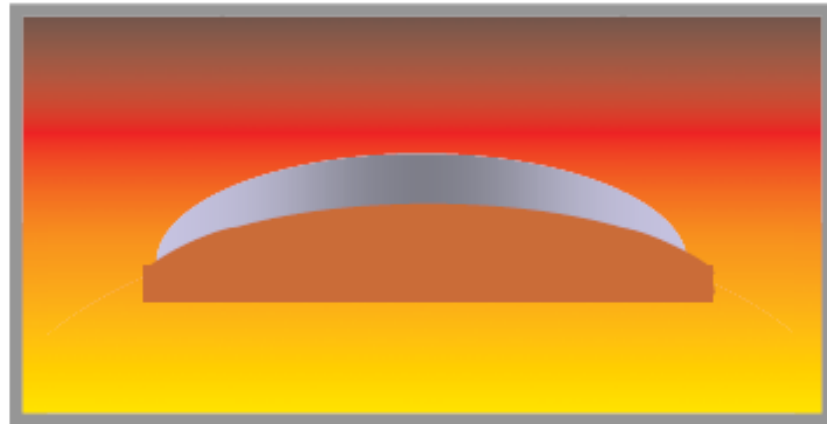
Spherical NP surface



Progresivní čočky



a) Ceramic mould

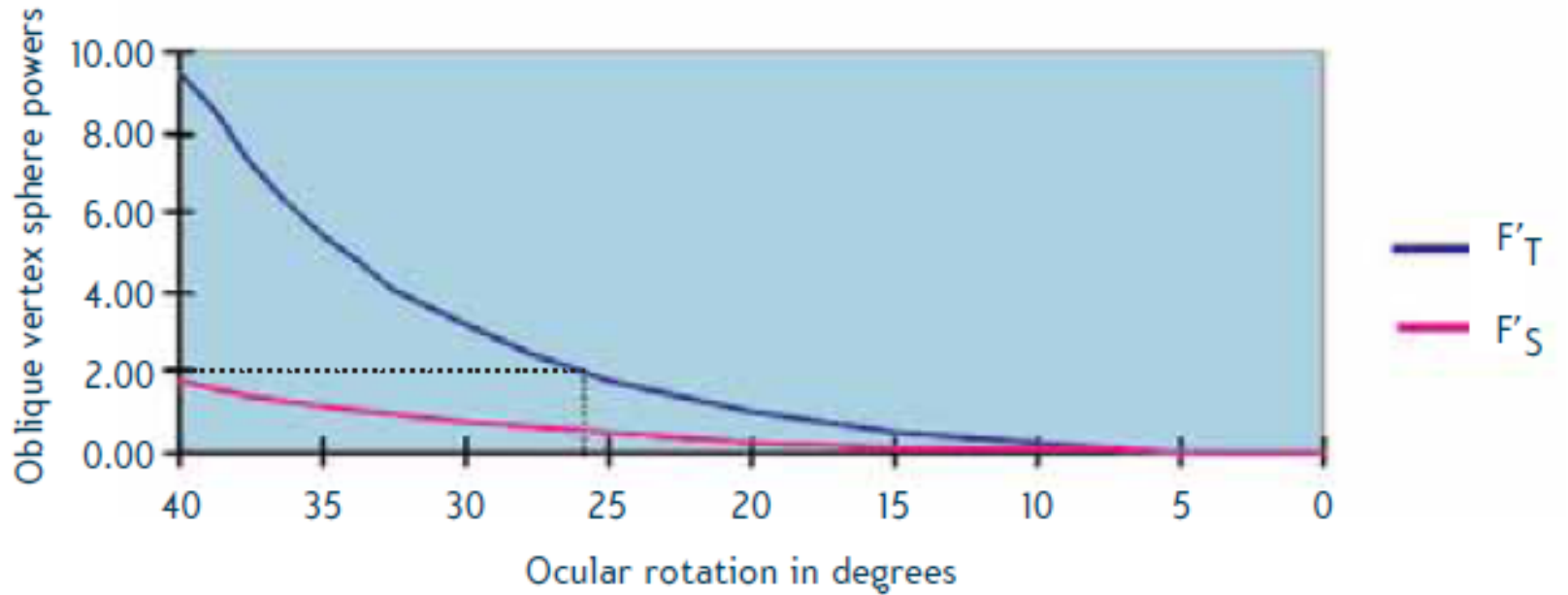


b) Slumping a glass blank (forming)

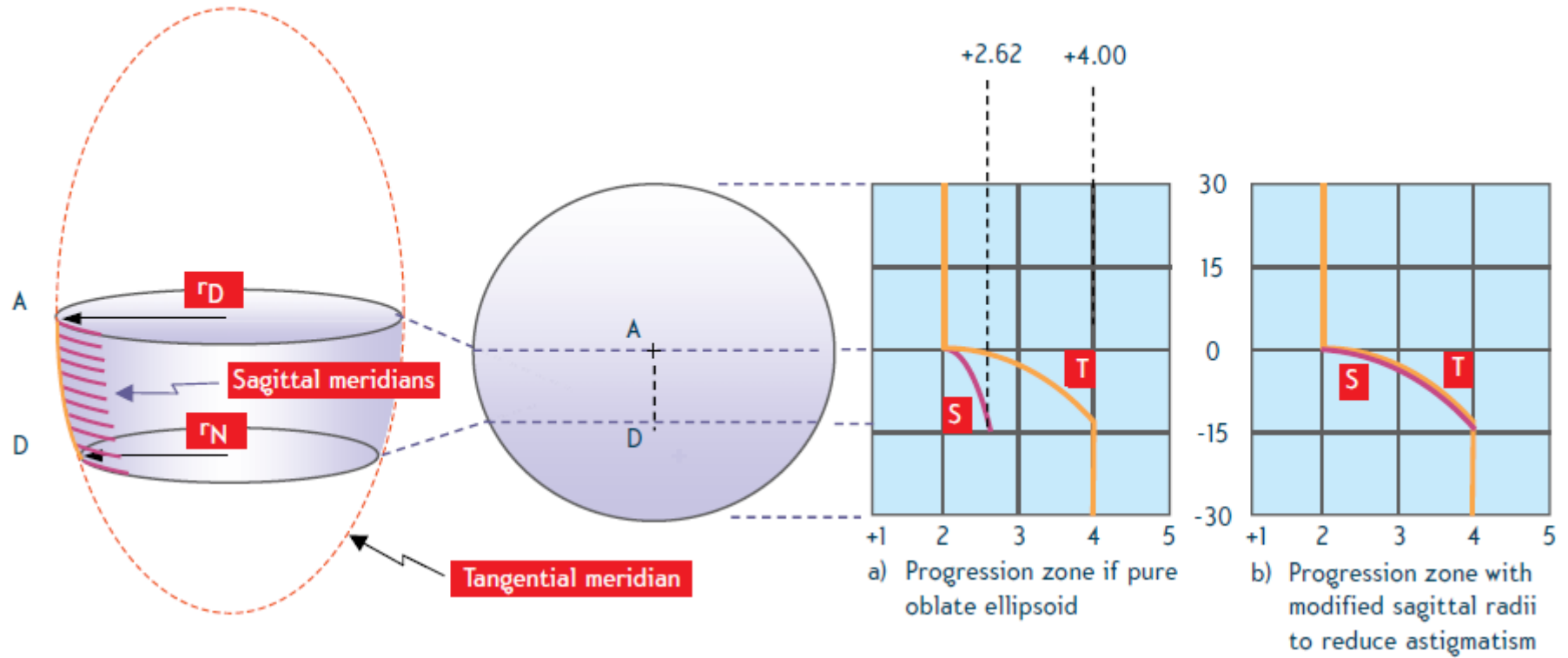
Progresivní čočky

Field diagrams for spectacle lenses

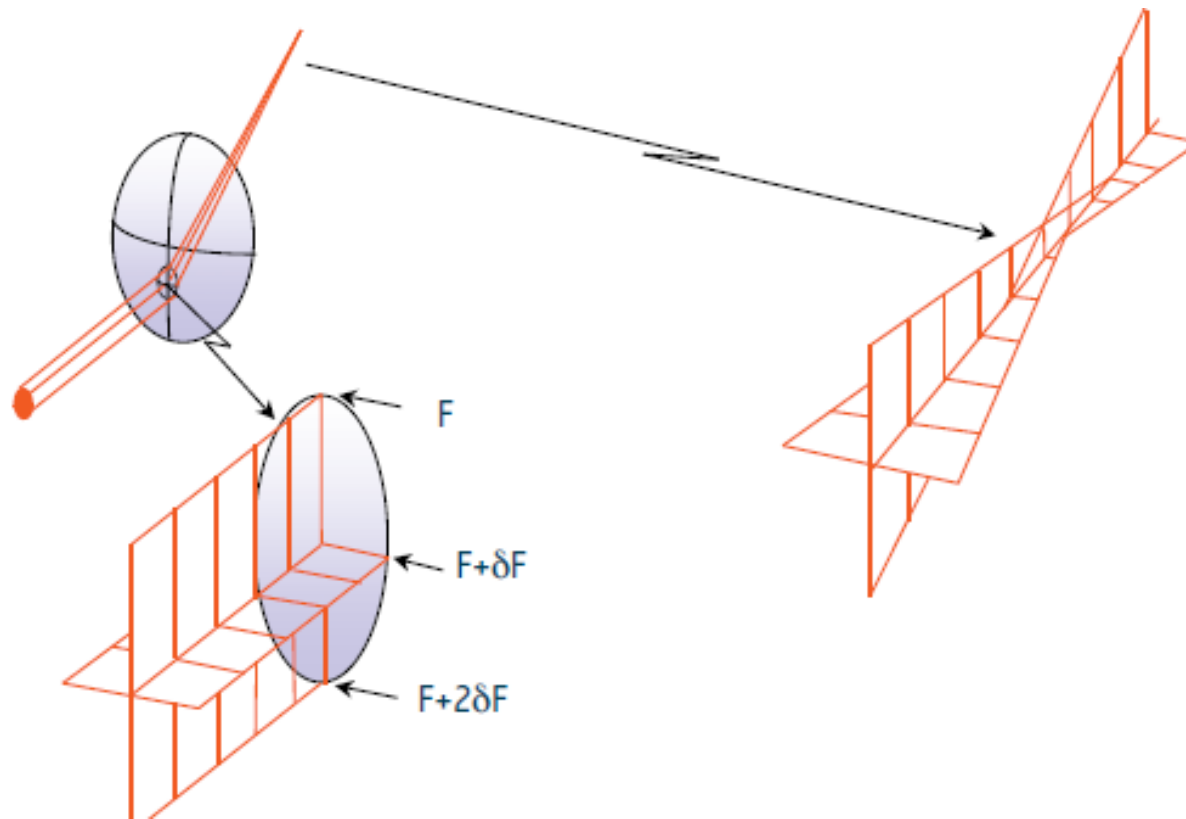
Tangential and sagittal oblique vertex sphere powers



Progresivní čočky

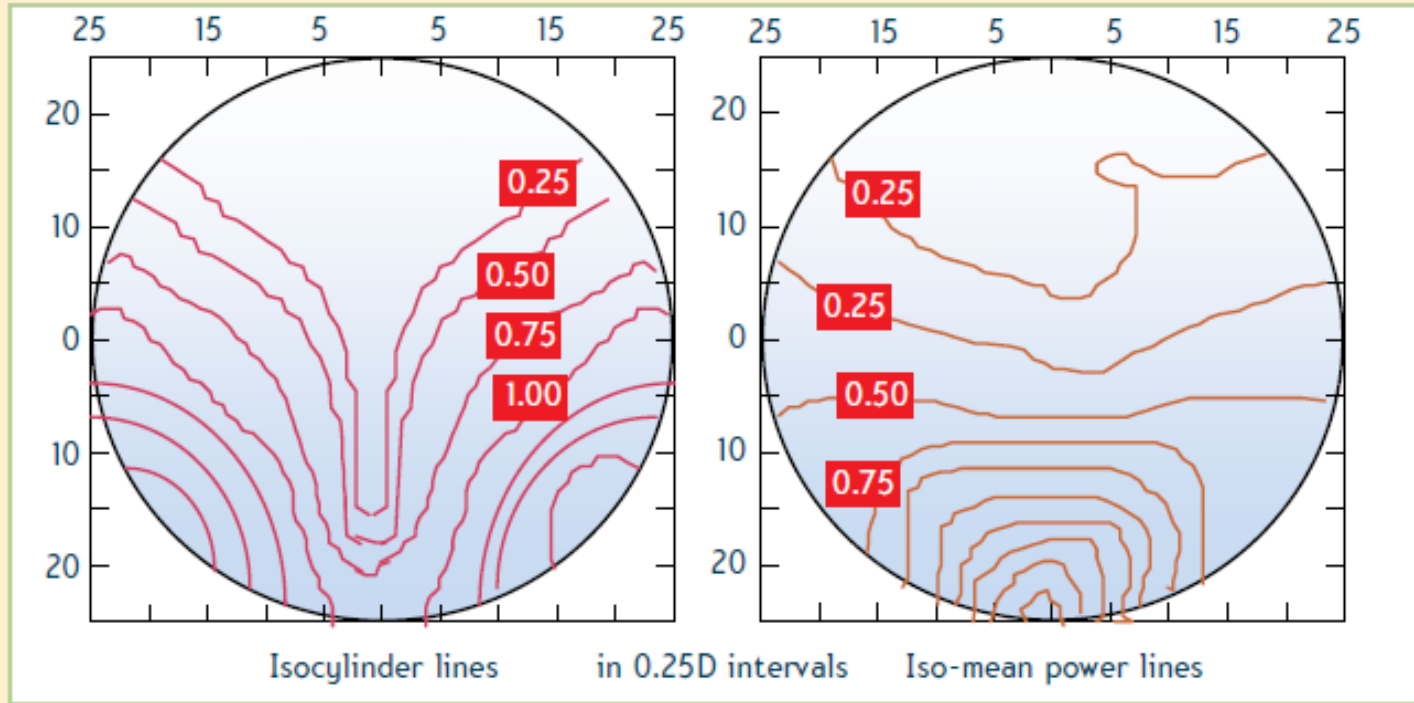


Progresivní čočky



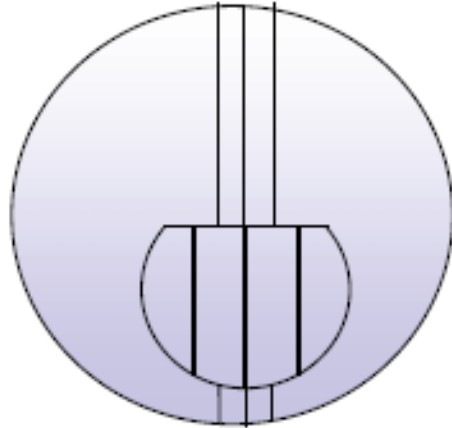
Progresivní čočky

Isocylinder and iso-mean power lines for progressive power lens, plano add +2.00D

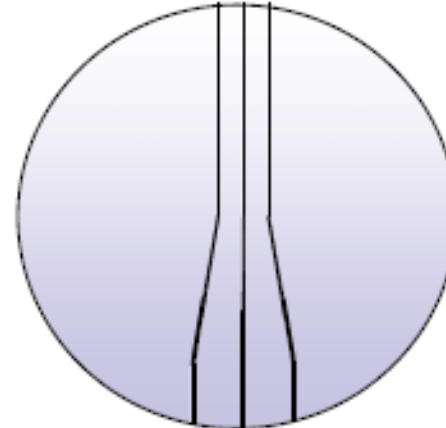


Progresivní čočky

Skew distortion in a progressive power lens

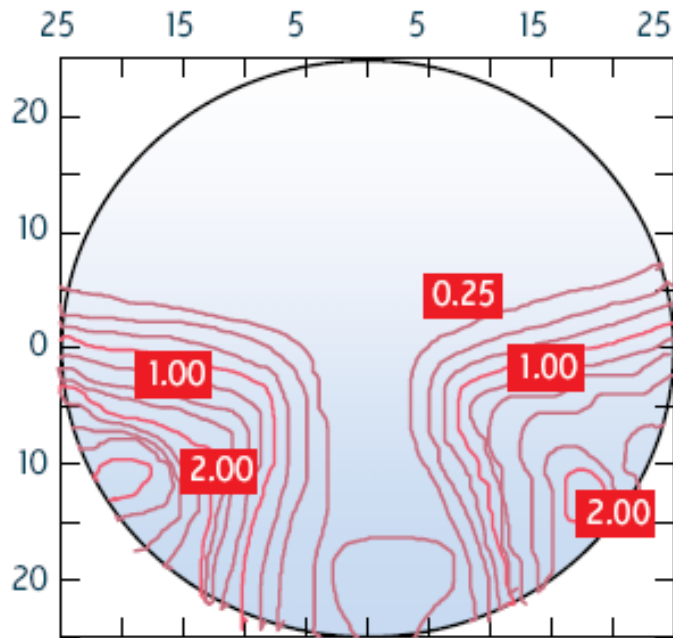


Flat-top bifocal

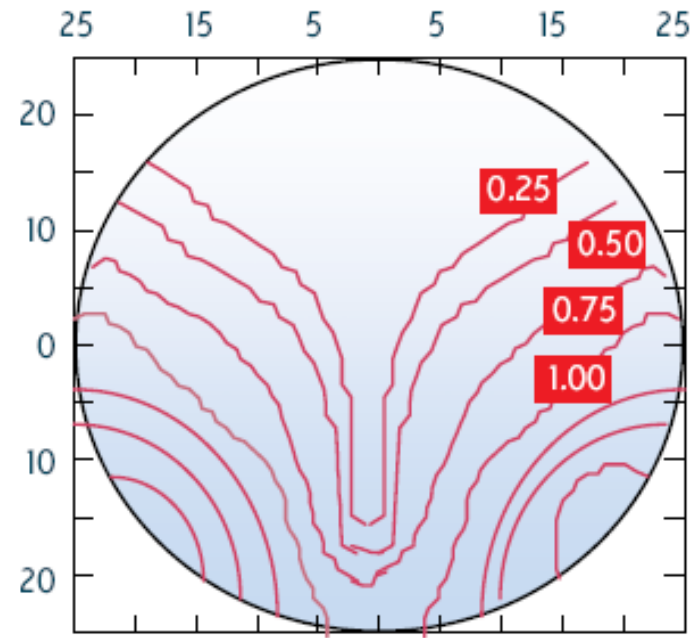


Progressive power lens

Progresivní čočky

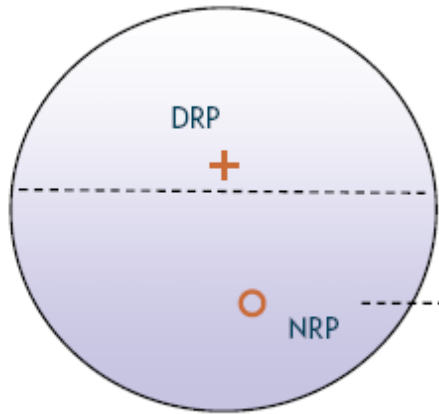


a) Hard progressive lens

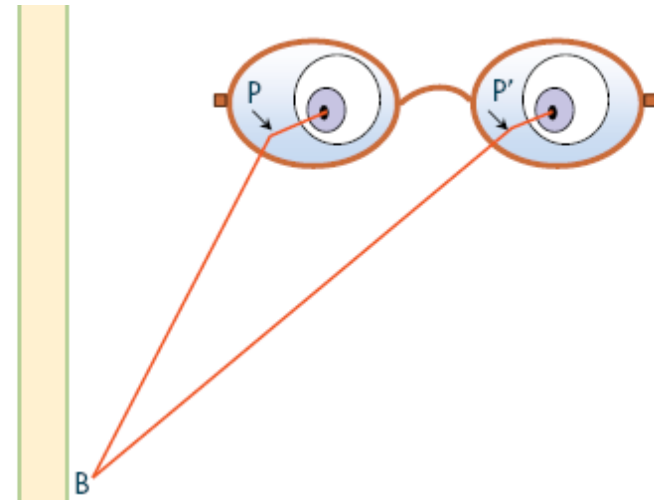
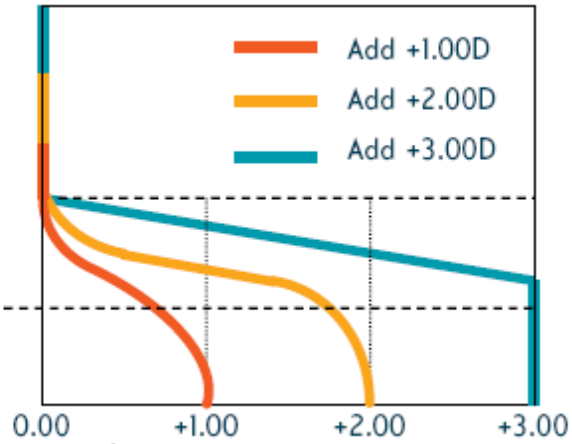


b) Soft progressive lens

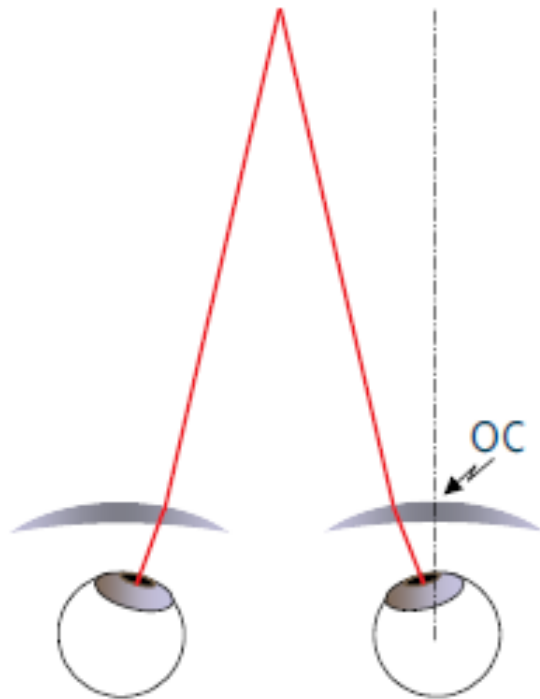
Progresivní čočky



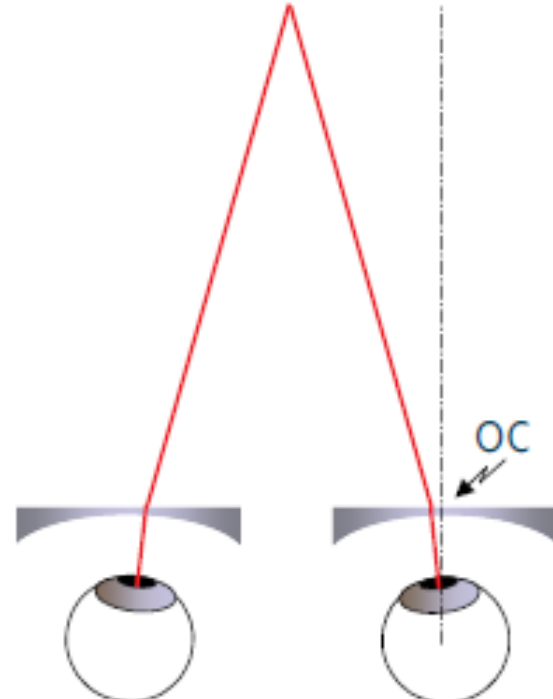
DRP = distance reference point NRP = near reference point



Progresivní čočky



a) Plus lenses



b) Minus lenses